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ABSTRACT

In response to data indicating that states having fewer post-secondary enrollees in two-year colleges had higher baccalaureate attainment, a study was undertaken to examine the possibility that a major state commitment to community colleges in response to demands for access means lower baccalaureate completion rates. The study compared Florida and California, states with the heaviest reliance on community colleges in highly selective and stratified systems of higher education, with Indiana, Wisconsin, and Illinois, states with more accessible four-year institutions and varying reliance on community colleges. Baccalaureate completion rates were determined by dividing the number of four-year college graduates by the total higher education enrollment. The study report examines the demographic characteristics of high school graduates from 1980-82 who attended post-secondary institutions, and the relationship between student characteristics and choice of post-secondary institutions. Next, detailed descriptions are provided of the systems of higher education in Florida, California, Illinois, Indiana, and Wisconsin. The report then examines college attendance patterns and baccalaureate completion rates in each of these states between 1975 and 1988. The final sections of the report provide study findings, examine the impact of state funding structure on completion rates, and present policy recommendations. Principal findings indicate that states with a greater commitment to community colleges have lower levels of baccalaureate completion, and that neither higher state expenditures per student nor lower tuition increases completion rates. Data tables and an 81-item bibliography are included. (PAA)

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STATE HIGHER EDUCATION SYSTEMS AND COLLEGE COMPLETION

Final Report to the Ford Foundation

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Harvard University

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STATE HIGHER EDUCATION SYSTEMS AND COLLEGE COMPLETION

Final Report
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Final Report on Project Funded by Ford Foundation

In America, states control the structure of higher education, and provide the largest share of resources for most students. They make decisions about structure, however, with almost no consideration of its impact on opportunity for students. Various states have adopted different approaches. Some have made massive commitments to community colleges as the basic solution to the problem of college access, and the efficacy of the solution has simply been assumed. Others have put much more emphasis on accessible four year campuses. Different strategies are likely to produce different results in terms of access to college and college completion. But neither policy makers nor researchers often examine these consequences.

When they do, researchers typically look at personal rather than institutional characteristics in explaining college success. There are two basic reasons - the dominant disciplines in the field, and the limitations of the data on which most of the research is based. Both economics and sociology are dominated by individual level forms of analysis, and economics characterizes higher education as a market and families as consumers making

choices. Neither has a track record of examining policy decisions that shape the basic institutional structures.

Another basic barrier to examining the issues from a broader perspective has been the fact that although structural decisions are made at the state level, the basic survey data that has been used to analyze college access is national in scope. High School and Beyond and the other large national surveys do not permit analysis at the state level. Thus the opportunity to examine the effect of structure is lost. The construction of the basic data set has been carried out as if these structures have no consequences.The research traditions that shaped the collection of the basic data about higher education simply omit this level of analysis.

The policy debate in state capitals has also been carried out as if structure does not affect students. In fact, there has been an assumption among public policy makers that there is one best model of institutions which fits the structure of knowledge, which is fair to all students, and which is efficient in holding down costs. That model has most often been the one developed in California with its famous research institutions atop a three-tiered system stratified by test scores and student backgrounds. The great prestige that has been generated by the undoubted success in creating powerful new research universities in this model have fostered the largely unexamined assumption that the entire system is highly successful. Implicit in this model is a basic commitment to two year colleges as a workable source of access for students

without high test scores.

The assumption about community colleges has persisted in spite of the fact that a growing number of higher education researchers have shown that the level of eventual bachelor degree attainment from students enrolling in community colleges with intent to transfer has been very low. In large part this has been because those researchers have concluded that the low level of transfer and subsequent bachelor degree attainment was a function of student characteristics, without looking further for explanatory variables. By definition, students excluded from the universities are seen as having less college potential and less is expected from them. Students are said to lack motivation, to be interested in vocational training, to lack basic skills, and to fail to perform in classes. Doubtless these explanations are contributing factors in many cases, and differences in student backgrounds certainly account for a substantial part of the differing outcomes. A major alternative hypothesis that deserves careful investigation, however, is that the state's choice of institutional structures has major consequences for the success of students. These same students might have fared much better in a different campus setting.

Community colleges are very different kinds of institutions from baccalaureate campuses and they do not often compare with four-year colleges in bachelor degree preparation in many ways, including focus of the institution, level of faculty education, depth and breadth of the general education curriculum, course requirements, library and laboratory resources, expectations for

student performance, coherence of academic program. In addition, community college provide a campus culture much less oriented toward bachelors completion and offering a lower level of competition. Four year campuses have a clear central goal - four year degrees. Community colleges offer a smorgasbord of degrees.

Our hypothesis--that the state's choice of institutional structures may be an important factor in bachelor degree attainment came from research in several metropolitan areas pointing in that direction, and disclosing an increasing concentration of urban minority students in two-year campuses in the 1980s. Our interest was deepened by examining data from all states and noting that those states with the lowest fraction of two year enrollment had the highest bachelor degree attainment, while those states with the highest two year enrollment had the lowest bachelor degree attainment.

The data we examined could not answer many basic questions about selection bias, differential enrollment levels, etc. But it did suggest the possibility of a strong relationship between the structure of higher education and completion rates, a relation that deserves close study. (Table 1)

TABLE 1

Percent of Two-Year Enrollment and Bachelor Degree Attainment in all Fifty States

Percent in 2 Yr. Colleges	BA Degrees as Proportion of Enrollment
0 - 19.9%	44.2%
20 - 29.9%	37.9%
30 - 39.9%	32.5%
40 - 49.9%	29.5%
50 +	22.1%

*Source: Computed from data in Chronicle of Higher Education, Sept. 1, 1988.

This preliminary research also showed that where there were few community colleges, minority enrollment was predominantly in four year colleges and universities and minority bachelor degree attainment was higher. Conversely, where there were many community colleges, minority enrollment in community colleges rose sharply, and bachelor degree attainment fell. Table 2 below shows these patterns.

TABLE 2

Percent of all Minority College Enrollment in Two Year and Four Year Colleges and Relationship to Bachelor Degree Attainment

% 2 Yr. Enroll.	% Bach. Degr.	% Min. in 2 Yr.	% Min. 4Yr.
0 - 19.9%	44.2%	14.1%	85.9%
20 - 29.9%	37.9%	32.4%	67.6%
30 - 39.9%	32.5%	41.0%	59.0%
40 - 49.0%	29.5%	44.1%	55.9%
50 +	22.1%	62.8%	37.2%

* Source: Computed from U.S. Department of Education Data in Chronicle of Higher Education, Sept. 1, 1988.

With this preliminary evidence at hand the Ford Foundation provided a small grant for exploratory research on the relationship between institutional structures and bachelor degree attainment, focusing initially on differences in bachelor degree attainment between states that had a large community college enrollment and those that did not. The essential question was whether a major commitment to community colleges to answer the demand for access meant a lower college completion rate.

We examined this complex question by using both national and state data. At the national level we used High School and Beyond survey data, which we also used to explore some differences among states, cities and suburbs. At the state level we used state data to compare Florida and California, the states with the heaviest reliance on community colleges in highly selective and stratified systems of higher education, with several midwest states--Indiana, Wisconsin, and Illinois, that had more accessible four year campuses and varying reliance on community colleges. These states had profoundly different structures and rules of access.

Our state level data had several sources. High school graduation data came from state departments of education. Higher education enrollment and degree attainment data came from the higher education coordinating board in each state, and from data submitted by the campuses to the United States Department of Education on their HEGIS/IPEDS annual surveys. All of the state level data was aggregate because Indiana was the only state with an individual level data base, which was very recent and still limited

in important respects. We were, therefore, limited to descriptive statistics rather than multivariate regression or other methods in this first phase of the research.

The analysis determined completion rate by dividing the number of graduates by the total higher education enrollment. This was important to obtain a measure of bachelor degree attainment irrespective of where the student started his or her college education, and the nature of the findings supported its use in this first phase of the research. This divisor does have certain limitations, however, which need to be overcome in subsequent research. These include the presence of adult non-degree credit enrollment in some states, which makes it difficult to control for the alternative hypothesis that differences in the extent of adult credit enrollment in states with low and high community college enrollment may be a confounding factor in our findings. We were able to delete adult credit enrollment from our California and Illinois data, but not from the Florida data, a point which must be remembered in considering the findings. The Florida graduation rate would be higher if such students were removed.

This research does not prove that any particular type of state higher educational structure is inherently defective, or better, but rather explores structural characteristics that are related to fostering and inhibiting degree completion for those students seeking the baccalaureate degree. The fact that certain problems are more common in systems that rely on community colleges does not suggest that the only solution is to cut community colleges.

Policy makers may wish to experiment with policies mandating new relationships between levels of colleges, or expanding the functions of two year institutions. Findings enable state policy makers and campuses to make whatever adjustments may be necessary to improve bachelor degree attainment for all students seeking that degree.

We recognize that not all students seek the bachelors degree, and that campuses providing other programs are performing very important work. This research, however, looks at students seeking the bachelors degree, and assesses the opportunity for students starting on all campuses to obtain it.

Our report begins with national data obtained from the High School and Beyond surveys for 1980 and 1982. The analysis focuses on the transfer and degree attainment patterns of students who began at a two year campus, with separate attention given to students attending college in the largest metropolitan areas of the country. The analysis provides important insights on institutional and policy factors related to student choice of institutions and their ability to complete a degree.

Who Transferred in the 1980s?

Preliminary Evidence from High School and Beyond

National High School and Beyond survey data based on students graduating from high school in 1980 and 1982 and attending any post-secondary institution show that those students most likely to

attend a 2-year college, i.e., students from low socioeconomic families, low academic achievers, minorities, were the least likely to transfer from a 2-year to a 4-year institution. And those few that did transfer were less likely to obtain a bachelors degree.

Transfer rates were studied for the entire national population of graduating seniors, and, in a separate analysis, for students from the central cities and the suburbs of very large metropolitan areas. At the national level, Hispanics were more likely to transfer to a 4-year college than either black or white students. Within the central cities of the nation's large metropolitan areas a different pattern was apparent with very large racial differences. Here black students were more than twice as likely as Hispanic students to transfer, and in turn, White students were nearly twice as likely as black students to transfer. Whites students were also much more likely than black and Hispanic students to start at a four year campus.

Economic inequalities were strongly related to access to different types of campuses. In an effort to explore the differences between states we attempted to correct for some of the limitations of the High School and Beyond data by obtaining permission to analyze the special state-level data sets created for six states willing to provide additional funds for broader surveys. The six states included two of the states whose systems are studied intensively later in this report. We also obtained permission to add information about cities and suburbs from the Census to the HSB data set to permit analysis of the largest metropolitan areas. The

results showed that the national patterns tended to be reflected in the state-wide data but that there were very considerable differences between states, differences that reinforced the possible influence of state educational strucutres on educational outcomes.

Since high status students are very likely to receive higher education under all systems, we expected that differences would be particularly apparent in the enrollment patterns of students with the lowest incomes. The data shows that among the six states examined, by far the lowest rate of college enrollment for poor students came in Ohio. Four-year college enrollment for the poorest group of students was the highest in New York State, with a tradition of open enrollment in the City University of New York and the lowest, twenty-five percent less, in California, with a test-driven admission process that forced many low income students to begin college in community colleges.

Table 3

Post High-School Enrollment by Social and Economic Status. National and State Samples, High School and Beyond

lowest income quartile	none	2-year	4-year	other
U.S.	36.3	25.1	31.9	6.8
big cities	18.4	22.4	50.7	8.5
suburbs	24.9	34.4	34.4	6.2
California	20.1	47.4	26.8	5.7
Illinois	27.1	28.2	36.2	8.5
New York	23.2	18.0	51.8	7.0
Ohio	37.1	20.5	34.1	8.3
Pennsylvania	41.8	11.8	34.6	11.8
Washington	30.8	26.9	26.9	15.4

Among the most affluent group of students, substantial majorities were in four-year colleges everywhere but in California, where only 43% were in such institutions. Ohio had the highest proportion of its high income students in such schools.

Table 4

Enrollment of Most Affluent Quartile of Students

highest quartile	none	2-year	4-year	other
U.S.	7.9	25.8	64.1	2.2
big cities	8.6	18.4	72.4	.7
California	5.8	49.1	43.3	1.7
Illinois	10.1	27.9	61.2	.8
New York	9.7	18.8	68.1	3.5
Ohio	8.2	16.3	75.5	--
Pennsylvania	12.8	24.4	55.1	7.7
Washington	7.9	21.1	71.1	--

In the nation and in every state there was a very strong relationship between socio-economic status and initial enrollment in a four-year rather than a two-year college.

Family Income and Occupation. Each analysis showed that the higher a student's socio-economic status, the more likely a student was to begin college at a four year campus. Higher income students who began at a year campus were also more likely to transfer. Both the admissions and transfer processes filtered out a disproportionate number of students from lower socio-income families. This pattern has been confirmed in numerous other studies, particularly in research conducted by the Higher Education Research Institute at UCLA. [Astin, 1982] This

difference exists even for students with similar test scores.

Sex Differences. While most sex differences were small, males were slightly more likely than females to begin at four year campuses or, if starting at two year campuses, to transfer to a four year campus. This pattern held true nationally, and within the central cities and suburbs of the large metropolitan areas. Since women have been a majority of college enrollment for a generation, and now account for a significant majority of those receiving bachelors and masters degrees, it is important to learn why men have been more likely than women to begin their college education at a four year campus, and why those beginning at a two year campus more often transfer. Differences in career goals and parent support are possible contributing factors that need to be explored, as are differences in information students and families may have on the consequences of institutional choice.

Achievement Scores: An Imperfect Explanation. There was a strong relationship between starting school at a four year campus and students' academic ability as measured by the High School and Beyond achievement test scores. The percentage of students who started at a four year college steadily increased as scores on the HS&B test increased. There were, however, significant numbers of high ability students in community colleges, particularly in states such as Florida or California where any student that does not graduate in the upper third of the high school class must start at a community college.

Transferring was related to academic ability in a

curvilinear fashion. The likelihood of transferring increased steadily from the lowest quartile students through to the second highest quartile, but then fell significantly for students scoring in the highest quartile. The failure of those students to transfer could mean that high achieving student starting at a two year campus face other obstacles to college completion. Their decision about where to start might have reflected financial or other non-academic obstacles. These patterns held at the national level and among the central cities and suburbs of very large metropolitan areas.

The Effect of High School Curriculum. As expected students who had participated in a college preparatory program in high school were more likely to start at a four year campus, or to transfer if they started at a two year campus. There was one exception, however. Students from the central city of a very large metropolitan area had higher transfer rates when they came from a general high school curriculum rather than from a college preparatory curriculum. They were, in fact, twice as likely as those from academic programs to transfer from a 2-year to a 4-year college, a puzzling finding. This may, however be related to a defect in the High School and Beyond data on this item. It may also be an indicator that the curricula are not really distinctive in many urban schools, or that students do not correctly identify their programs. Overall, almost two-thirds of the students who began their education at a four year campus had a college preparatory curriculum in high school, a much larger

proportion than for those beginning at two-year campuses.

Type of high school attended was also an important variable, as previous studies have shown. Students who attended private high schools were more likely to attend four year campuses as freshmen than their peers from public high schools, while students from public high schools, beginning at a community college were more likely to transfer.

The Relationship Between Transferring and 4-year Degree Attainment

The High School and Beyond analysis confirmed previous studies showing that students across the country beginning at a four year campus were more successful in completing a bachelors degree than students who transferred from a two year to a four year campus. Four year degree completion rates for those who began at a four year campus averaged 10-15 percentage points higher than for transfer students from the two-year campuses. The differences were even greater for low SES students from central cities, where the graduation rate for students who began at a four year campus, 33.6%, was twice the rate of transfer students which was 16.2%.

Racial Differences. Overall, white students were more likely than black and Hispanic students to obtain a bachelors degree. Among the two largest minority groups, Hispanic students who made it into college had a higher rate of success than black students. This was in part a function of the fact that Hispanic students had a much higher high school drop out rate and the remaining students

were a higher proportion of the college eligible pool.

A particularly important finding in the High School and Beyond data set was the small percentage of black students obtaining a bachelors degree whether they began at a four year campus or transferred from a two year campus. This was particularly true for transfer students from central city high schools, where only seven percent of black students graduated from college within six years, as compared with thirty-five percent of white students. A 500% difference in outcome.

Is it Family, Social and Economic Background?

The general pattern observed throughout the High School and Beyond data was that the higher a student's socio-economic background the more likely it was that the student obtained a bachelors degree. The only deviation from this pattern came for students in the highest socio-economic quartile who had a somewhat lower bachelor degree attainment rate than students in the next lowest quartile. This held true even for students whose families lived in the suburbs. In their case 35% of students from the lowest quartile beginning at a four year campus completed a bachelors degree, 52% from the second quartile, and 74% for the next higher quartile. But the graduation rate for students in the highest SES quartile dropped modestly to 66%.

Gender and Degree Attainment in Suburbia. The only notable gender differences in suburbia occurred among students from the

suburbs of very large metropolitan areas. Among both suburban transfer students and students from the suburbs who began at a four year campus, males were considerably more likely than females to complete a bachelors degree. The expected pattern of very low success for minority males relative to females did not emerge in this analysis, in part, perhaps, because sex differences were already built into different levels of high school completion and initial college enrollment. This suggests that most of the special problems of black men may occur before high school graduation.

High School Type For the most part, students from private high schools were more likely to finish a bachelors degree. Fifty-six percent of the students who graduated from private high schools completed a bachelors degree during the study period, compared with only 42 percent from public schools. The one exception to this general pattern was for central city transfer students from public high schools who were more than twice as likely than their private high school counterparts to finish college.

Summary of High School and Beyond Patterns

The High School and Beyond data show that those who stood to benefit the most from obtaining academic credentials at a two-year institution and subsequently obtaining a bachelors degree, racial minorities, students of low socio-economic background, and students of low academic ability, were the least likely to transfer. And even when they did transfer, they were less likely than others to

persist and obtain the bachelors degree.

State Systems and Bachelor Degree Attainment

If different types of institutions have different effects on college completion it is reasonable to assume that different state systems of education, with their own mixes of types of institutions, would effect the entire state's level of college completion. In a society where more than three-fourths of students attend public institutions, the mix of institutions a state provides has an obvious impact in shaping student choices. Strangely, this proposition has not been seriously investigated. Colleges have had such prestige that their actions and outcomes have most often been assumed.

This study examines state systems of higher education and considers in what ways differences in those systems might be related to differences in bachelor degree attainment. Preliminary research had pointed to important differences depending on the mix of higher education institutions in the state. The kind of public higher education campuses available was particularly important, for nationally over eighty-five percent of students have been attending public rather than private campuses.

The research that pointed in this direction had looked at access, choice, and bachelor degree attainment in five metropolitan regions of the country. To ascertain whether the patterns observed in those areas were a phenomenon of metropolitan regions alone or

had broader implications required state level data, and this study was designed to investigate that question. It compares statewide structures in Florida, California, Illinois, Indiana and Wisconsin, differing on two primary axes, proportional reliance on two year colleges for access, and selectivity of admission. [Paul, 1990]

The analysis begins with a description of the five state structures establishing their unique characteristics, the attitudes and policies that have shaped them, and how they are viewed today by those working most closely with them. It then analyzes how high school graduates have moved through each structure over a fifteen year period, and it concludes with a discussion of the implications of the findings for policy supporting bachelor degree attainment.

The Florida System

Florida relies on community colleges more heavily than any other state. The public university system admits only twelve percent of Florida students, while the private four year sector serves fourteen percent of all enrollment. Most of the other students are enrolled in public community colleges, with approximately seventeen percent of first time freshmen attending out-of-state.

Until this year Florida high school students had to pass an examination to graduate from high school, and students still need a high school diploma, or general education diploma, to enroll in either a transfer or vocational program at the community colleges.

In addition every undergraduate, whether enrolled at a community college or one of the public universities, must pass an examination to proceed from lower division to upper division - the CLAST, or College Level Academic Skills Test. This makes entrance and exit from the community colleges more selective than almost anywhere else in the country. Georgia alone has a comparable arrangement with entrance tests into the community colleges and an examination for progress to upper division enrollment.

Because the public university system admits only twelve percent of Florida students, entrance to the public universities is very competitive at the freshman level, giving the universities a small, elite lower division enrollment. The four campuses most in demand have very selective admissions, three others have selective admissions, and two are less selective. The small number of enrollment spaces at each of the campuses increases the selectivity at each level and many applicants are turned away. The average combined SAT score of university freshmen has risen dramatically in the past seven years to over 1100. [Zimpher, 1991] Most private colleges are less selective than Florida's public 4 year campuses.

Community college students who pass the College Level Academic Skills Test (CLAST) and receive an A.A. degree are by law and articulation policy qualified to enter a public university with their lower division requirements met. Curricular discussions between the universities and the community colleges, and a common course numbering system, have reduced credit transfer problems, but there is no guarantee with the limited number of spaces available

at the upper division of the universities that a transfer student will get admitted to the campus or program of his or her choice, and the competition is especially keen where limited access programs are involved.

The Florida system evolved in a state with a relatively small and geographically dispersed population before World War II that operated separate black and white colleges. The large in-migration of population after World War II brought the state many highly qualified professionals educated elsewhere, but also a growing number of young people in need of education.

Florida is also a low-tax state with no state income tax to fund education. The combination of a diverse population, an economy making few demands for well educated employees, and a reluctance to fund education when the population is growing, has produced an emphasis on meeting basic needs, emphasizing quality for a few over lower cost education for many.

When questioned about low college going and bachelor degree attainment rates in Florida, policy makers pointed to problems of attitudes and weak public schools. As Patricia Hanson, Associate Vice Chancellor for the State University System said:

> "the college going rate in Florida is low because elementary and secondary education has a low graduation rate and there is considerable opportunity in Florida for the non-college educated, or students with an A.S. in career areas, to find jobs. Florida has not built up generations of parents who are college graduates and who want their children to have a university education. The goal of many Floridians is not a good liberal arts education, but to be able to earn more money. Raising bachelor degree attainment is a concern in the state but not a big one." [Hanson, 1991]

When asked about the wisdom of relying so heavily on community

colleges when so few students were getting bachelor degrees, Jim Wattenburger, widely considered the father of the Florida junior college system, responded with a litany of the system's virtues: "[Community Colleges] promote access, reduce the operating costs of the state, lower the costs for students, encourage continued education in technical fields and the semi-professions, and encourage transfer to the universities," discounting the criticism. State policy makers agreed, emphasizing cost-effectiveness. [Wattenburger, 1991]

William Proctor, Executive Director of the Postsecondary Education Planning Commission was unambiguous,

> "the Commission has always supported 2 + 2 and will continue to do so because it is cost effective, and the state is better served by it. Students also get better teaching with 2 + 2 where faculty teach more and do less research. Besides the university system has been very protective against expansion. They say you cannot dilute quality."

The definition of cost effectiveness is important here for it is confined to low cost per student and does not include cost in relation to success for students. [Proctor, 1991]

Hanson argued similarly, adding a university perspective:

> "the growth of the state has given the community colleges very good students academically who for financial reasons or preference for home area choose to go to the community colleges. The community colleges serve a superb purpose. They have the ability to deliver services to everyone in the geographic area, whatever the level of the person. Universities have no business doing the span of activities the community colleges do, but those activities need to be done. The community colleges increase the range of students who ultimately get into the university. They pay more attention to teaching and counseling and nurturing that universities cannot and should not and will not do." [Hanson, 1991]

When Florida's use of tests as gatekeepers was raised, with

state data showing the disproportionate effect of CLAST on low income and minority students, Clark Maxwell the head of the Community College Board argued that the criticism was unfair.

> "large numbers of minorities do fail and there is some legitimacy to minority concern, but the community colleges have responded with an opportunity to upgrade skills of individual students. Social promotion does nothing for anyone. CLAST is an indicator of need. We must get people to where they can achieve." [Maxwell, 1991]

The basic theory of Florida policy makers was that the tests were both fair and valid predictors of college performance, better than a students own grades in community colleges, and that raising test scores would force students at lower levels to achieve more. They did not offer proof, however, for either proposition.

William Proctor, the Executive Director of the Postsecondary Education Planning Commission, emphasized the right of the state to expect high levels of performance in return for state funding.

> "The state has a right to expect students to perform at a certain level in return for state funding. We do not want or need two sets of standards for blacks and whites. The majority of the competencies are found in the high school college preparatory curriculum. Unless there is a test like CLAST you are just passing students through without concern for learning." [Proctor, 1991]

Hanson also waived off the criticism of CLAST:

> "we do so much to make students ready for it that we have not really measured their skill as much as their persistence to master the test. It is just a hurdle and not effective. It hurts students who find test taking difficult. If it weeded out students I would feel bad about it, but it doesn't. Low income and minority students drop out of community college for personal reasons - family, money, lack of support." [Hanson, 1991]

Only two leaders took criticism of CLAST seriously. Wattenburger acknowledged that CLAST had a very deleterious effect

on low income and minority students. "There is empirical evidence for this, there is lots of talk about it, but no action, only gimmicks." Barbara Newell, former Chancellor of the State University System, and a faculty member at Florida State University, gave the most comprehensive assessment.

> "The tests have served as gatekeepers, because of the tests themselves, and because the resources promised for preparation have not come forth. There has been a real need to improve quality at the elementary and secondary level in teachers, in curriculum, in levels of courses and standards of achievement. There has been some improvement in the level of basic skills in the past five to ten years, but much more is needed. Half of the students in the community colleges need remediation." [Newell, 1991]

Asked if they could start over from scratch, what they would retain or change in the Florida higher education system, most policy makers said they would make no structural changes because the system was excellent. Maxwell boasted that Florida was the only state "that had all the pieces together." Wattenburger insisted the system "had no problems. It just needed more resources and more controls on campuses to ensure differentiation of mission and purpose." [Wattenburger, 1991; Maxwell, 1991]

Hanson claimed that the problems were all at the lower levels:

> "Change is not needed at the university but in early childhood, and in parental involvement with their children. The elementary and secondary schools have to provide better curriculum and career preparation, they need to eliminate their general education program and provide specific vocational and college preparatory tracks, and they need to improve their school climate to encourage a diverse student body to remain in school." [Hanson, 1991]

In other words society should adjust to higher education, not higher education to society.

Pamela Zimpher, the Governors's chief analyst in the

educational policy unit, offered a somewhat more balanced approach. "Two plus two has been wildly successful beyond hope. Florida has done a remarkable job of keeping tuition and fees low and making financial aid available." But she also recognized some of the side effects.

> Rigorously controlled enrollment at the four year campuses has, however, been an inhibitor to community college transfer, and limited access programs at the four year campuses have acted as barriers for transferees into programs of their choice. In addition, the A.A. program has become the minority program at many of the community colleges, and this has occurred outside of state policy which has not established clear priority in the last decade." [Zimpher, 1991]

Only Newell, who is no longer in office, came out strongly for change. "It is unfair and cruel what we are doing to our undergraduates," the former Chancellor said. "We need more four year campuses with appropriate resources." Florida needs "a much larger proportion of the enrollment at baccalaureate campuses because we need many more bachelor degree graduates. If students start at a four year campus they are much more likely to achieve the bachelors degree." She believed, in other words, that the state's choice of heavy reliance on community colleges with gatekeeping tasks had large social and economic consequences.

The California System

In the late 1950's the state of California faced projections that higher education enrollments would double between 1960 and 1975. Individual campuses were jockeying for dollars and programs to meet demand. Two-year campuses wanted to become four year

campuses, four year comprehensive campuses wanted to become doctoral universities, and doctoral universities wanted to become research universities. In addition there was fierce competition among the regions for new campuses, and legislators were overwhelmed with a multiplicity of demands that had no clear rationale. Politics pitted the ambitions of one campus or region against another, and threatened to cost the state far more than was necessary because of program duplication. [Coons, 1968; State ofCalifornia, 1960]

To restore order to higher education, the campuses and the state agreed to the development of a master plan for higher education. It was to establish a state system of higher education, and provide a coordinating body to keep the campuses operating within the plan, and present the needs of higher education as a whole to the state. The report, A Master Plan for Higher Education in California, 1960-1975 not only set California higher education policy from 1960 to 1975 but quickly became a standard against which other state systems of higher education measured themselves. It has subsequently been reviewed and renewed in California and continues to exercise large influence outside the state.

The Master Plan promised a place in higher education for every citizen of California wanting to go to college and capable of doing so. But it did not promise a place anywhere in the system the student desired. Rather it established a three-tiered system of higher education with specific access standards. Students who graduated in the top eighth of all high school graduates would be

able to apply to the University of California, students in the top third to the California State University campuses, and all other students desiring public higher education would be required to start at the community colleges. Under these terms a third of the students, rather than twelve percent as in Florida, would have access to the four-year campuses. And California did not require an entrance test for the community colleges or an examination for advancement to upper division.

Each of the three tiers of the system was assigned a specific mission and purpose, and academic program. The University of California campuses would provide a full range of undergraduate programs, offer education in all of the traditional and many of the applied professions. They would offer a full range of doctoral programs, and be the research university for the state. The California State University campuses would provide undergraduate and masters programs in the liberal arts, and in the applied professions and fields. They would be allowed to offer a few doctoral programs in conjunction with the University of California, but their primary function would be to serve as a teaching university below the doctoral level, in both the basic liberal arts fields and a broad range of applied areas. The junior colleges would provide programs for transfer to four- year institutions, and general and vocational education. [State of California, 1960]

The assignment of such a strongly differentiated mission and purpose, academic program, and student body to each tier of the system put public policy in the role of shaping which students

would have access to each type of education and careers. And these decisions have defined the educational and career opportunities of the over ninety percent of California college goers who have attended a public campus since 1960.

The provisions of the Master Plan were given considerable media publicity, public hearings were held, and there was broad support. Only in retrospect did criticisms emerge. The Plan had initially been supported as a way to make the best possible provision for education. By the late 1960's, however, critics began to say that its purpose had been institutional rather than educational; that it was a mechanism to control institutional appetites, fighting, and competition, and to contain costs, rather than to seriously craft an educational plan. [Coons, 1968; State of California, 1987a]

Arthur Coons, Chairman of the Master Plan Survey, and President Emeritus of Occidental College, addressed the issue directly in 1968 in his book Crisis in California Higher Education,

> "California's development of a Master Plan for higher education in 1959-60 was a direct resultant of the unresolved problems of rivalry, tension, and struggle over several decades among the three public segments of higher education and also among and between them all and the private or independent segment. The chief struggle over three decades has been between the University of California and its developing system and the State Colleges and their developing system, a struggle for program, position, prestige, and power." [Coons, 1968]

Or as one scholar has put it, a brilliantly effective policy solution concentrating vast resources and remarkable students in the University of California system has been presented as a

scientific, valid and cost-effective specialization of the higher education system. [Orfield, 1992]

In point of fact the Master Plan was straightforward about its objectives. The preface states:

> "The basic issue in the development of the Master Plan for Higher Education in California is the future role of the junior colleges, state colleges, and the University of California in the state's tripartite system and how the three segments should be governed and coordinated so that unnecessary duplication will be avoided." [A Master Plan for Higher Education in California, 1960-1975]

The plan outlined two objectives:

> "First it must guard the state and state funds against unwarranted expansion and unhealthy competition among the segments of public higher education. Second, it must provide abundant collegiate opportunities for qualified young people and give the segments and institutions enough freedom to furnish the diverse higher educational services needed by the state...Long negotiations and extensive consultation produced a delicately balanced consensus among the three segments. The agreement that has been reached is essentially a compact;..frank recognition of the needs and desires of each segment and of relative priorities among them was an essential starting point."

Our review of the working papers shows no evidence that an educational rationale was ever presented, or that there was evidence that the community college system would provide equivalent access to the bachelors degree for students seeking transfer. Those points were simply assumed. [State of California, 1960]

Recognizing this, a 1973 Report of the Joint Committee on the Master Plan for Higher Education argued:

> "Learning is the primary purpose of California public higher education. (But) too often both higher education and 'master planning' have advanced the needs and aspirations of institutions, considering persons largely as abstractions and statistics to be matched with institutional vacancies. We reject that approach to education and planning." [Report of the Joint Committee, 1973]

The Plan was not changed then to meet the Committee's objections, however, nor has it been subsequently.

Critics have pointed to important ways institutionally enhancing decisions have affected students. Institutional aspirations for status and prestige produced the assumptions that efficiency and effectiveness in education could best be achieved by separating students on the basis of academic ability. This fostered the assumption that the 'best' students deserved the best education and less capable students should receive proportionately less in quality of institution, educational program, and dollars spent per student. They show that institutional aspirations for greater selectivity directed the access quotas, and assert that there has never been an educational justification for those proportions. Rather they matched institutional and fiscal resources with demand. [Report of the Joint Committee, 1973; Coons, 1968]

Criticism has been strongest with regard to the theory of easy transfer. If the decision to limit freshman access at the University and California State campuses was made to meet the reputational needs of the institutions and reduce costs to the state, critics argue, equity depends on the ability of students from the community colleges to transfer successfully. The 1973 review, however, pointed to steadily declining transfer rates, and offered data showing a clear correlation between family income, race and ethnicity, and the segment a student attended, a finding reinforced in subsequent studies. [State of California, 1973; 1985; 1986; 1987-88; 1987b]

The 1973 Committee report recommended that "Each segment of California public education shall strive to approximate by 1980 the general ethnic, sexual and economic composition of the recent California high school graduates. This goal shall be achieved by provision of additional student spaces and not by the rejection of any qualified student..." The latter point was particularly important, for the second major policy criticism has been that access had been made a zero sum game in the Master Plan. [Jt. Report, 1973]

A 1989 state report concludes:

> "If in 1987 the ethnic composition of those eligible for admission to CSU had been at least equal to the ethnic composition of the 1987 high school graduates, over 10,000 blacks, Hispanics, American Indians, and Filipinos would have qualified and the same number of Asians and whites could not have qualified <u>if the eligible pool is limited to one-third of the graduates.</u> It is a zero-sum game." [Bigelow, 1989]

A third major policy criticism has focused on the concern that California is one of the states with the lowest proportion of students completing college. A national 1971 Newman task force report discussed the policy issues imbedded in decisions about access and retention nationally.

> "We can assume that society fulfills its obligations simply by providing the opportunity for as many as possible to enter college. Success cannot and should not be guaranteed. High dropout rates are not inconsistent with our commitment to broad social success, but rather reflect the maintenance of rigorous academic standards and our insistence that a college degree represent real achievement. Or we can assume that society's obligation (and its own self-interest, as well) is to provide more than just the chance to walk through the college gate -- that there must also be access to a useful and personally significant educational experience," [Newman, 1971]

Though the report was cited in support of the latter assumption, no

action was taken to modify the system in its favor.

The fourth major policy criticism has been that "the three-tier system with its rigid admissions quotas is inherently racist..." As the 1973 Joint Report noted, "because socioeconomic and cultural conditions in the early experience of minority students leave them unable to measure up to the admissions standards of the four-year segments" they have been systematically excluded in larger proportions from the educational and job opportunities afforded by access to the two upper tiers of the system. The same point was made in subsequent reports including Expanding Educational Equity, 1986; The Challenge of Change, 1986; California Faces California's Future, 1986; The Master Plan Renewed, 1987.

These criticisms generated a number of requests for change within the framework of the system, but few to change the system. The institutions which grew under the system had accumulated vast prestige and power and the system itself seemed normal and legitimate after it had shaped the experience of generations of college students. The basic features of the highly stratified California system have remained in place. Indeed the problems of access have been intensified by even greater demand for scarce enrollment places, and large tuition increases in the early 1990's.

The Illinois System

Illinois constructed its state system of higher education just

after the California Master Plan was developed. Its basic goals were to expand access, with the lowest cost to the state, and the least impact on the major campuses either in loss of funds, reduction in quality of students, or changes in the work of the faculty and the teaching-learning endeavor.

It too adopted the concept of providing broad access through a state wide system of community colleges. Illinois differed from Florida and California, however, in the proportion of students that would have to start at a community college, and in the degree of selectivity recommended for the four year campuses. Illinois also provided a set of accessible doctoral granting campuses that fit between the state colleges and universities in the California system and the University of California campuses.

Any student in Illinois who graduated in the upper half of his or her high school class and met the other admissions requirements could apply for admission as a freshman to a four year campus. Sufficient enrollment places were made available across the set of public universities to ensure that this was possible, and that students with appropriate academic credentials would not have to start at a junior or community college, unless that was their choice. Some students with weaker records were also able to gain admission to the public universities.

The three level baccalaureate system of research, doctoral-granting, and comprehensive universities, provided both undergraduate and graduate students with the opportunity to study at a public doctoral granting institution, with its larger array of

academic programs and faculty, without having to qualify for entry to a research university. The three levels of B.A. education also avoided the sharp dichotomy between elite and applied roles separating the University of California campuses and the California State Colleges and Universities. Illinois also had a larger system of private colleges and built a large system of state financial aid to expand access to them.

Rather than limiting enrollment at the public baccalaureate campuses to the upper twelve percent of students as in Florida, or the upper third in California, the upper half could attend in Illinois. And admission to all but one of the public universities was intended to be moderately selective and not elite.

Illinois campuses were, however, given the authority to raise their admissions requirements beyond the minimum recommended by public policy when scarce space or resources dictated such a move, and many utilized this provision. Public policy also provided that where space was scarce, qualified applicants could be admitted in order of their qualifications until all spaces were filled. By selectively controlling their space and resources, individual Illinois campuses have raised the average ACT score and class rank of the freshmen they admit, but even with these changes the Illinois universities have been more accessible to both freshmen and transfer students than those in Florida or California.

The dynamics behind these policies were three fold. There was only a small constituency in Illinois for an elite public university system. If there were going to be public universities

they would have to serve a broad constituency. The fact that the University of Illinois at Urbana-Champaign had been functioning as an elite university was not a matter of common knowledge because it was achieved indirectly, as standards rose when space was not available.

Making admission to the other campuses available to any student who graduated in the upper half of his or her high school class and met basic competitive requirements for general admissions, or the more selective requirements for specific programs, simultaneously met the needs of the legislature for a broad constituency for funding public higher education, and the desire of the campuses for a large enough undergraduate program to serve as base and springboard for expanding their graduate programs. [State of Illinois 1964, 1966, 1971]

The architects of the Illinois higher education system felt California had made a mistake in not providing a set of doctoral-granting teaching universities, and they consciously corrected for that in the Illinois system. By providing a separate set of campuses for this applied doctoral work they hoped to broaden the constituency for such a degree, and reduce enrollment and cost pressures on the research universities. [Glenny, 1989, 1990]

The junior college system was also conceptualized differently. It was given a more residual role than in Florida or California. It was to meet the needs of those who either did not want to leave home, could not afford to attend a university, had not performed at the academic level required by the universities, or wished training

in a non-academic program. It was not presumed to be a full substitute for access to the baccalaureate campuses. [Works, 1949; Griffith, 1950; State of Illinois, 1964, 1966, 1971]

The Illinois system, then, offered a third structural option, one that was selective but not elite, which relied on junior or community colleges to provide expanded post-secondary education but made entrance to the four year campuses far more accessible than Florida or California. As in Florida and California, there has been little overt conflict over this system. It has been praised for its comprehensiveness, its diversity, its resource base, its ability to provide for better prepared and less prepared learners, for traditional and non-traditional students, for minority and majority students.

But its critics point to a number of problems with how the system works. They express concern that too large a proportion of first time freshmen are starting at the community colleges - a low of 63% and a high of 79% depending whether you look at state or campus data. They point out that the largest proportion of minority students have been enrolled at the community colleges because access standards and costs at the four year campuses have been out of reach of many minority students. They point to the fact that transfer rates from the community colleges to the public and private colleges and universities in the state have been low, varying between 10% and 14% for all students, and 25% of the students in baccalaureate-transfer programs, depending on how the transfer rates are estimated. And they argue that those students

who do transfer have a significantly lower bachelor degree attainment rate than those who start at a four year campus, 41.4% as opposed to a little over 50%. [Orfield and Mitzel, 1984; Paul, 1991]

They also believe the breadth of the community college mission has compromised quality, and that adult education programs in the last six year have overshadowed vocational and college transfer endeavors. They question the relevance of many of the community college occupational programs to the current and future labor market, and criticize both the quality of the baccalaureate transfer programs and the effectiveness of transfer mechanisms. Most of all they criticize the community colleges for failure to gather and provide data that would make it possible to establish accountability for their endeavors. [Langan, 1991]

The City Colleges of Chicago have been particularly singled out for criticism. A recent report argues that "they have been turning increasingly into pre-collegiate institutions. devoting much of their resources to training in pre-high school subjects." It concludes they have been failing in all of their program areas - in adult education, vocational training, and college transfer. [Langan, 1991]

Critics have also pointed to problems at the four-year level, in particular the small number of public four year campuses given the size of the state and the needs of students. They point to the very small proportion of minority students attending the baccalaureate campuses, to rapidly rising tuition, and to

substantial differences in the kind of academic programs available on the different campuses. [Holmberg, 1991; McGann, 1991; Younge, 1991; Paul, 1991}

Each of these criticisms, however, has been categorically denied by higher education policy makers and most by leading legislative policy makers. Responding to the claim that too many students are starting at a community college, Virginia McMillan, Director of Research for the Illinois Community College Board said the nature of the students and limited space on the baccalaureate campuses were responsible.

> "the community colleges serve an older population who cannot relocate, and the traditional students who go to community colleges are not academically prepared for the four year campuses when they enter a community college; finances are a problem for many of them, and access to the four year campuses is limited in space as well as academic qualifications." [McMillan, October, 1991]

The fact that the state controls space at the four year campus through decisions about how many public four year campuses to have, where to locate them, their size, and admission standards, was not mentioned. The assumption underlying the response of most policy makers was that the infrastructure of higher education was fixed, and that those students who didn't fit into the existing space and admissions patterns at the four year schools belonged at a community college. The implications of the fixed structural arrangements for individual opportunity, or for the labor force of the state as a whole, never entered into the discussion.

Steven Bragg, an Associate Director at the Illinois Board of Higher Education, commented, "No one has said the distribution of

enrollments is out of whack, but no one has looked at it recently either."

> "The Board has adopted course specific minimum admission requirements for the universities and this should put pressure on the high schools to increase the academic preparation of students so they can qualify for university admission, but it will remain up to the campuses to decide on grade point average, high school rank, and test scores appropriate for admission to their campuses." [Bragg, 1991]

In other words, state policy on high school course requirements, tuition, and campus selectivity were being used to control, and if necessary, reduce access.

When asked about the high concentration of minority students at the community colleges, and their small representation on the baccalaureate campuses, most Illinois policy makers exhibited neither surprise nor concern. They said that minority students were not getting necessary preparation in high school, and the baccalaureate campuses were trying to improve minority enrollment. One legislator, Representative Yvetter Younge, Chair of the Higher Education Committee, expressed "distress" about the decreasing number of minorities entering and graduating from the public universities and "about how higher education was becoming irrelevant to the needs of minorities." Her colleague, Representative Andy McGann, head of the Educational Appropriations Committee, however, viewed it differently, arguing that the community colleges were protecting minorities by giving them an education they "would never have had due to poor education, low finances, and a need for more maturity before leaving home." [Younge, 1991; McGann, 1991]

No policy maker we interviewed thought that the diversity of mission at the community colleges was interfering with academic quality. Most agreed with McMillan:

> "All areas continue to move but prioritizing is cyclical. A few years ago, in the early eighties, the push was occupational, then in the mid-eighties it was economic development. Most recently the emphasis has been on the transfer function. We should get a re-emphasis on work force preparation now, but not to the detriment of transfer because of the accountability movement. No given area is suffering from benign neglect." [McMillan, 1991]

In other words, everything was going well.

Community college leaders were adamant that criticisms about irrelevant occupational programs were false. The President of the Illinois Community College Board, Dr. Cary Israel, pointed to state-of-the-art programs at several campuses. Pressed as to whether this could be generalized to all of the campuses, he conceded that there were "pockets of excellence and colleges lagging behind, but no irrelevance." [Israel, October, 1991]

McMillan said relevance was part of program review, but follow-up data on student jobs, and satisfaction with education, was just starting to be collected and employers had not been surveyed. Board of Higher Education planning documents show a growing recognition that this kind of information is needed, however. And in October, 1990 the Board authorized the establishment of a Committee to Study Preparation of the Workforce. [State of Illinois, 1991]

Questioned about the effectiveness of the transfer function in the light of low transfer rates, and lower bachelor degree attainment by community college transfers, policy makers were

unanimous in their support of the system. They said they were satisfied that the state and the campuses had been making vigorous efforts to work out articulation agreements. Pressed further, Bragg did note that the University of Illinois at Urbana had never been a part of the articulation process, and that "while articulation works very well in certain instances, such as in math across the state, and in engineering, there have been horror stories about other areas." However, he said, "the Illinois Board of Higher Education sees transfer as a very important function of the junior colleges and the universities, and considers (transfer) an important element in its work to improve minority student achievement, work force preparation, the quality of undergraduate education, and school-college partnerships." [Bragg, 1991]

Critics of baccalaureate education have focused particularly on the small number of public four year campuses, and the disjuncture between their location and the distribution of the population. The Head of the Senate Higher Education Committee, Senator Joyce Holmberg, went to the heart of the issue in a recent interview.

> "We need more four year campuses geographically distributed across the state. Their absence causes many people to end their education, especially minorities. The Illinois Board of Higher Education has determined underserved areas, but the politics of campus and state over money have produced inaction. The major public universities of the state are too far away from most people." [Holmberg, 1991]

Queried about whether the Illinois Board of Higher Education intended to expand the number of four year campuses, Bragg said the

Board had no plans to increase the number, but would work with the present campuses to offer selected programs at sites more geographically distributed. Holmberg was also concerned about increasing the proportion of minorities at the baccalaureate campuses and giving minorities the help they need to succeed. "With the economy changing, and the population changing, equity is an important issue." [Holmberg, 1991; Bragg, 1991;]

The cost of baccalaureate education has also been a growing issue in the state. The head of the Educational Appropriations Committee, State Representative Andrew McGann, was blunt in an interview.

> "We have not had enough money for education for the last fourteen or fifteen years, ... The increasing tuition has made higher education a high priced opportunity, and makes it too expensive for students, forcing many to start at a community college. The state has not kept up with its money and the campuses have raised their tuition. It is a dual problem. The state should be coming up with more money, but the campuses can still cut back, especially with travel. There has to be a combined effort from both sides, and not just raise tuition." [McGann, 1991]

Another major criticism has focused on how academic programs have been distributed across the public universities. Critics have pointed to the fact that the major academic and professional programs, and the most prestigious applied programs, have been concentrated on the research and doctoral-granting campuses, while students at the comprehensive campuses have had access to few of those programs. In addition some of the most sought after applied programs in business and education on the comprehensive campuses do not have program accreditation. The four year commuter and upper

division commuter campuses have been particularly restricted in academic program offerings and have suffered the most from lack of program accreditation. [Paul, 1992]

The Illinois system, therefore, has been selective but not elite. It has utilized community colleges, but made access to the four year campuses available to more students. It has been praised for its comprehensiveness and diversity, and criticized for its small number of four year campuses poorly distributed in terms of the current population, its poorly functioning transfer option, the way its academic programs have been distributed, and the difficulty minorities have in accessing the four year campuses, particularly those with a broad range of academic and applied programs.

The Indiana System

The Indiana Plan for Postsecondary Education was put together in 1971 and 1972. Conceptually and structurally it was the polar opposite of the Florida and California models, and rejected much that was in the Illinois plan. Rather than utilizing junior or community colleges to absorb much of the growth in higher education enrollments, it emphasized keeping all academic education on the four year campuses, and provided a separate set of public vocational-technical schools that would be strictly vocational.

It has provided for broad access to baccalaureate education, through a set of regional universities with less selective admissions, and two flagship campuses with competitive admissions.

A small number of two year campuses were a part of the original system, but all but one have subsequently become four year campuses. Most of the remaining two-year programs are located on the four year campuses. [State of Indiana, 1972]

A specific set of values as well as the politics of education in Indiana underlay the system. The first emphasized opportunity for the student over quality of the campus, when quality was defined in terms of institutional prestige and selectivity of admissions. The second placed what the student could gain from higher education over what the student could bring to the campus. The third reflected a strong belief that every Indiana citizen should have access to regional baccalaureate campuses at the freshman level in both the arts and sciences and the applied areas. And the fourth suggested that this could best be accomplished through less competitive admissions at the regional campuses and selective but not highly selective admissions at Indiana's two research universities. The opportunity to stay enrolled, however, should be contingent on meeting specified standards of performance. The system was limited by a fifth value - like Florida, Indiana is a low tax state. [State of Indiana, 1972]

Proposals for a community college system emerged several times but were not adopted for a variety of reasons. Many preferred to have the universities open to most of the population through non-competitive admissions rather than directing enrollment to community colleges. The universities wanted broad enrollment because they feared a diminution of enrollment-driven funding if a

separate set of community colleges was established in a low tax state. Both for educational reasons, and to protect their funding and influence, they argued that they could provide a higher quality two-year academic program than community colleges, and that students seeking a two-year academic program deserved the same quality education as those who intended to pursue a bachelors degree.

Herman Wells, longtime President of Indiana University, recalled helping to shape the way the issue was framed by saying each time the question arose "what community colleges really do is put off one's education for two more years." Placing some two-year programs on the four year campuses would be educationally beneficial, he and his colleagues argued, because it would enrich the two year programs and encourage and facilitate continuation or transfer into four year programs through a common lower division experience academically and experientially. [Wells, 1991; State of Indiana, 1972; Hicks, Jan. 5, 1990]

Another important factor was rooted in a sixth value, the European idea of the dignity of skilled labor with its own training, direct and concrete. Indiana was a heavy industry state with a tradition of well paid skilled labor. Hoosiers who embraced it looked with disfavor on efforts to make training for skilled labor academic, and sought a complete separation of the two functions. They had worked hard to get a set of vocational-technical schools that were wholly devoted to job training, the Indiana Vocational and Technical schools, or IVYTECH, and they did

not want to see them turned into academic institutions. This removed the third reason for having junior or community colleges, which was to provide education for the vocations and the semi-professions in an academic context, and has continued to be important in maintaining the separation of vocational and academic preparation at the post-secondary level in Indiana. [Hicks, 1990]

A study of policy documents, and interviews with key policy makers, suggest both values, institutional interests, and fiscal limits, were important in the debate over whether to have community colleges, and that the structure of Indiana higher education was derived from a confluence of social, institutional, educational and fiscal values coalescing around a structural decision.

As in the other states there have been a number of concerns with the system intertwined with an underlying sense of satisfaction. Among those concerns are whether the IVYTECH's are offering quality programs and whether their credits should be transferable to the academic campuses, if additional two year programs are needed, whether community colleges should be developed today, and the status of minority access.

Marci Reddick, the Governor's educational policy advisor, said the Governor was particularly concerned about developments on the IVYTECH campuses. He and important constituencies were concerned about insufficient quality, and ambitions to expand curriculum to transform themselves into community colleges. [Reddick, 1990]

> "Concerned citizens see the IVYTECH's at a very critical point in their history where they either make the grade or something

will be done to radically restructure them. If it was me (Reddick) in charge of IVYTECH, I would circle my wagons and have a very limited course offering. I wouldn't try to compete with the academic institutions because they can never do it. They don't have the political history build up in the Ways and Means and Finance committees, they don't have the reputation and prestige, they can't get the research or Federal money. They ought to have the best welding schools in the country, the best LPN schools in the state, build on this and have limited course offerings."

"In their ten year plan they are proposing well over 200 new degree programs throughout the state, including aerospace technology. This is absolutely ridiculous. The source of desire for expansion is the institutions themselves, not local legislators. They (local legislators) and the governor are concerned about quality which varies considerable across the 13 regions and 19 campuses." [Reddick, 1990]

Reddick noted that fiscal issues were particularly important.

"Our state is one of the five lowest taxing states in the country. I don't foresee us going to a community college system. I hope not, I don't think the state could afford it, because that would be huge outlays. Capital expenditure would be phenomenal. Where would we get the faculty to teach them. You would have a whole new system and a need for financial aid. That would be expensive and we just don't have that kind of money. I don't know that we need to change the structure. We need to fine tune IVYTECH, clarify their mission and institutional role here, and have people take a hard look at their professional aspirations and make sure that's not coloring their direction for the institutions. I think a lot of people, no matter what their profession, want to build and build and build. IVYTECH needs to think about what they are doing. We need to think about what we are doing at our regional campuses, directing the academic needs of IVYTECH there. It [IVYTECH and the regionals] is a good partnership." [Reddick, 1990]

Transferability of credits between the IVYTECH's and the regional campuses, and among the four year campuses has been another issue in the state. Although IVYTECH'S were not intended to be transfer institutions, pressure in the last several years from students and parents has raised the issue and forced consideration of a path between them and the four-year campuses, an issue to

which the four year campuses have been reluctant to respond.

The Governor's advisor urged change:

> "The (baccalaureate) campuses have been elitist with their very high standards rather than accommodating. Minority legislators are most concerned because most of their constituents go to the IVYTECH or regional campuses, and probably have the most trouble transferring credits. If the institutions don't take the first step, then we will see a legislative solution that won't please anybody. IUPUI and IVYTECH in Indianapolis have a prototype agreement and IVYTECH in Terre Haute and Indiana State University have an agreement. That is the direction we need to go in." [Reddick, 1990]

Policy makers at the Commission for Higher Education agreed that there was a serious problem at IVYTECH, and that minorities were being hurt the most by problems in transfer. Hank Hector, Deputy Commissioner, was frank. "A student can graduate from an IVYTECH and not get a job because their standards are so low." Staff members confirmed that minorities were particularly hurt because "minorities are increasingly concentrated in the IVYTECH system, and as a consequence have few opportunities to transfer to a baccalaureate program, an issue of growing concern to the Commission, to political representatives, and minority communities across the state." [Weldon, 1990, Hector, 1990]

Deputy Commissioner Hector noted:

> "If a student finishes at IVYTECH and goes over to IUPUI they say welcome, but you start over. That's stupid. That's elitism, the worst form of it. IUPUI gives credit for experience but not for courses at IVYTECH. I'm not arguing that the vast majority of Indiana citizens should get a Ph.D. or even a baccalaureate, but we don't take very good care of our two year students."
>
> "I had a Black woman who tried to get into Indiana University, Northwest come to me. She's a teacher's aide and wanted to be a teacher. She was refused admission, but told to take a remediation course at IVYTECH. She did so and passed. When she took the entrance exam for IU-NW she failed it. IVYTECH

> remediation doesn't meet the standards for admission to the regionals. This is an incredible system. Here we're trying to get minorities into higher education like crazy, especially into teaching, we even have scholarships for them, and our regionals are not co-operating. IU-NW is sitting in the middle of Gary which is 80% black. What do you think the percentage of black students is in Gary, I mean at IU-NW, 22%, and there are great fears it will become a black institution."
>
> "The biggest problem from our (the Commission's) viewpoint, however, is to get more people into two year programs. If we want to have an educated work force that can deal not only with jobs, but in civics and all the other functions of a well educated society, first we have to make a big dent in the two year level and get a lot of adults back because we have a horrendous drop-out rate, because for years and years you could drop out of high school and go into the steel mills. Industry wants this. They want more people educated at the two year level because they are more likely to stay in Indiana, but they also want more people with a bachelor's degree."
>
> "all the universities would say that...community college is a very bad word in this state...They would say that our system is best because we don't have the community college system. And they have done a superior job convincing everyone that their system is superior... But community colleges provide a general liberal education along with a technical education, an M.A. teaching faculty is sufficient, the faculty teaching load is much higher, and the system is cost effective." [Hector, 1990]

In other words Hector wanted national rationales for community colleges recognized in Indiana. But he has had few supporters.

Indiana legislators were less critical of their system. Speaking for his colleagues, as well as for himself, Stan Jones spoke primarily of the strengths of the IVYTECH's and the universities. He said the universities had not been funded generously by the legislature, but they had been given considerable freedom to develop on their own.

> "The legislature has treated higher education with benign neglect financially, but it has given them greater independence of operation and this has enabled them to make collectively better decisions for themselves than the

> legislature would have made for them. Higher education has never been at the mercy of the General Assembly because they (the campuses) have been able to raise tuition, raise fees--- What the legislature wants now is more accountability, not so much in a financial sense as in minority enrollment, in graduation rates, in quality, in faculty teaching more undergraduate courses, in transferability of credits." [Jones, 1990]

The Indiana Alternative

The Indiana approach has been to provide broad access to the baccalaureate campuses, to provide a separate set of vocational campuses, and to place the few two year academic programs offered by the state on the four year campuses. Ease of access, and emphasis on baccalaureate enrollment, have characterized the system.

The Wisconsin System

Wisconsin has also chosen to work without community colleges. It shares with Indiana both the social philosophy that the universities exist for the people and should be very accessible to them, and the tradition of training skilled labor in its own environment. But it has developed its own way of providing for both. In its public higher education system it provides thirteen universities, and a set of two year centers devoted solely to academic preparation in an integrated University of Wisconsin system. And it has a separate set of vocational schools, similar to the Indiana Vocational Technical Colleges, that provide post-

secondary job training.

The approach is similar to Indiana in providing accessible public universities and making a complete separation between academic and vocational post-secondary education. But it differs from Indiana in its use of separate two year academic centers, and from the rest of the state systems in our study in the integration of the public universities and two-year centers in one University of Wisconsin system. The Center's academic programs are developed with University oversight, a high caliber full time academic faculty is recruited for the Centers, and there is full integration of the lower division academic program at the Centers with the upper division program at the Universities.

Policy makers place the strength of the system in its unity where two-year and four-year campuses have academic cohesion as part of the one University of Wisconsin system, and in the split at the two year level between vocational-technical training and academic preparation, which they argue "improves the learning experience, and opportunity to persevere, for both vocational and academic students." [Shaw, 1991]

> "First each operates in a small environment with a single focus. The two year centers are more like private colleges. Half of the faculty have a Ph.D., the teaching load is twelve hours rather than fifteen or more at a community college. Ninety percent of center faculty are full time, whereas the largest proportion of community college faculty are part time. The faculty of the centers are part of the University of Wisconsin System and the system can focus on what they do in academic program, curriculum, and teaching, and can isolate out problems in transfer and deal with them. Wisconsin data show that students who start at a Center and stay to complete an associate degree do better after transfer than native students at the four year campuses."

> "The vocational-technical campuses," on the other hand," can focus totally on job preparation to meet the employment needs in their local communities. By being responsive to their basic purpose, and what their communities specifically want, they have been very effective in their training, are popular with the people, and are well funded by the local communities." [Shaw, 1990]

This strong differentiation of mission, and focused attention to purpose, have been key policy goals of the Wisconsin system since its organization in 1971. Asked whose interests these policies were designed to serve, long time policy makers agreed that they were developed to foster the interests of the state, and continue to do so. "The policies (were) essential to eliminate waste and duplication,"said Lee Dreyfus, former Governor of Wisconsin, and an important leader in developing the system. They were also important for justifying unequal budgets, Ottie Fish, an eighteen year member of the Board of Regents of the University of Wisconsin said.

> "They were critical for maintaining the differences of funding that underlay ... differences in purpose, whereby the vocational-technical schools are funded primarily through county property taxes and run by local community boards, and the two year centers have been owned by either a municipality or a county which provides the facilities, with the state contributing only the teachers." [Fish, 1990]

Asked about their usefulness for educational opportunity, policy makers offered diverse responses. University policy makers spoke approvingly of the way differentiation of mission and purpose had protected them from an enrollment and tasks they did not want. Regents addressed fiscal necessities which limited the system in a conservative era.

"Faced with...high demand for public education and limited by

> other severe fiscal demands, the State of Wisconsin has been unable to fund the University System adequately. In the average public appropriation provided for each student, Wisconsin's rank dropped dramatically from fourth among the fifty states in 1972-73 to thirty-first in 1983-84." [Regents, 1986]

University President Kenneth Shaw acknowledged that there were trade-offs for students at the Centers:

> "Many do not get a broad range of academic program. They cannot get a specific foreign language or other special program, but they do get the major programs of choice of eighty percent of the students. While it is true that the students at Madison and Milwaukee have more academic program opportunities and a research faculty, students at the other university campuses have a faculty committed to undergraduates... the undergraduate program is owned by the campus and is its major focus... Students who attend the comprehensive campuses are quite employable and go right into jobs. Employers are happy with them, and the kids are happy; and those kids would not have been happy at a research university. They tend to be from an agrarian community and would not have been happy at a large institution." [Shaw, 1990]

The presumption in his comments is that students have been attending the campus of their choice. This, however, has not been true for a growing proportion of students. Campus size and place have been limiting factors for student choice for years, and became more so in 1986 when the Regents undertook a program of enrollment management capping the enrollment at the high demand campuses and redirecting it to less utilized comprehensive campuses with smaller academic programs, and to the centers.

At the Center level, diversification and focused purpose have also been perceived as both positive and negative. Focusing on the positive the Chancellor of the Centers argues that:

> "their clearly delineated role in the University of Wisconsin system has enabled the centers to focus on transfer education,

> and do a good job at that. In this role they have been perceived as a full partner in the system, and have been given the attention and funding that they need. They have been able to recruit faculty appropriate for a transfer mission, and all of their academic program and curricular changes are articulated with the universities before implementation. This has given them the strength to meet the needs of their students in ways that a community college could not." [Portch, 1990]

His feelings were not shared by all, however. Administrators and faculty at some of the Centers felt the mission of the centers had been too restrictive for both the institution and the students. They pointed to lower academic respect for the institution and the faculty than at the four year campuses, and argued that the limitation to two-year academic programs was not allowing the centers to respond adequately to the needs of their many place bound students who wanted four year and graduate program at the centers.

The Chancellor conceded that "there is a need for some upper division courses and I support it, but not by changing the nature of the centers, rather by having the universities bring some junior, senior, and graduate level courses to the Center campuses and offering them there. If the Centers tried to be four year campuses they would be mediocre at it, and that would not be a contribution." [Portch, 1990]

Administrators at the vocational system also felt the policies cut two ways. They spoke happily of their ability to provide job training without diversion of effort or resources to academic pursuits, but also expressed concern at being left outside of an academic mission. Queried about their concerns, Albert Beaver,

System Vice President for Academic Affairs, rejected them, arguing against another level of transfer institutions. "The VTAE were formed to provide technical occupational training below the bachelors degree and that is what they should do. District directors want to run community colleges. There is no broad support for this at the VTAE Board or at the Board of Regents. We don't want to facilitate another level of transfer institutions." [Beaver, 1990]

> "Students do change their mind, therefore we have a new policy that up to fifteen credits can be transferred, but we do not want students to approach the VTAE with transfer in mind. There is going to be strong political pressure eventually to allow that. I know it. It will come from place bound students who can see that transfer programs were grandfathered in at Madison, Milwaukee, and Nicolet VTAE campuses in 1971 and they will say why can't it be done here? But it should not be done." [Beaver, 1990]

The introduction of enrollment management in 1986 to cope with high demand and insufficient resources reduced student choice within the system. Its goals were to reduce the student-faculty ratio, increase the number of sections that could be offered to a downsized student body, and increase dollars per student. It aligned Wisconsin with a national trend and was one prong of a three part strategy to strengthen the campuses. The strategy included asking the state for additional revenue, raising tuition and fees, and reducing the number of students.

The impact of the strategy is discussed in a Board of Regents issue paper. "Enrollment management, as implemented in the UW System, seeks to optimize the use of resources and enhance the quality of education delivered to our students." It is premised on

the necessity of limiting enrollments to maintain educational quality within budgetary constraints. Therefore, "where there is a conflict between access to particular institutions and educational quality the Regents place priority on quality." The total system enrollment target was a reduction of 7,000 FTE students, from 138,710 FTE in 1986-87 to 131,710 FTE by fall 1990-91. [State of Wisconsin, 1990b]

Asked about the effect of enrollment management on students, the President of the University said "it had pushed groups of students to campuses that were not their first choice, and to campuses of a different level, in particular from Madison to one of the regional universities, and from some of the regional universities to the centers, but the primary issue was size and quality of education." Pressed about differences of curriculum and career opportunities if qualified students were denied access to the campus they qualified for, Shaw replied that "no inequity was involved because the state could barely afford what it had now. It could afford no new universities." [Shaw, 1990]

At no point did he, or any other policy maker, address what enrollment management meant to students. The entire focus of the discussion was on what it meant to the quality of the research campuses and the fiscal pressures of the state. [Shaw, 1990]

Asked about the effect of enrollment management on the Centers and their students, the Chancellor said the Centers grew in the first two years as students were turned away from the regional campuses, and this strengthened the Centers. After that some of

the centers became over-enrolled and deferred or refused admission to students. When enrollment was deferred it was usually until the spring semester, but at least three centers had denied several hundred students admission because of lack of space. Asked about what this meant to students when the VTAE did not offer a college transfer program or transferable credit, the Chancellor said, "We in our society place too high a value on a university versus a vocational education. The percentage of high school students who even consider a VTAE is probably lower than it should be. So if some Center bound students get pushed down to VTAE it would probably be good not bad." [Portch, Interview, September 18-19, 1990]

The Vice Chancellor's committee reviewing enrollment management did point to some areas of concern, however.

> "students residing in the immediate service area of an institution may not qualify for the opportunity to take on-campus credit courses. These 'place-bound' students may not be financially able to attend another UW System institution for which they might be academically eligible."

They also noted that special students with lower registration priority were finding access limited.

How enrollment management was interacting with programmatic initiatives was not clear, they said, and there was a potential conflict between policy initiatives to increase the number of minorities on the one hand, and to attract the brightest state scholars on the other, and enrollment management. But they provided no data on the effects of enrollment management on students. [State of Wisconsin, 1990b]

It was possible for us to examine differences in admissions policies before and after the implementation of enrollment management. In consonance with the strong state tradition of access, only four university campuses had competitive admissions before enrollment management. The rest of the universities had less competitive admissions, Parkside was non-competitive, and the Centers had open admission.

Under enrollment management, however, Madison admissions became very competitive, five other universities introduced competitive admissions, and four remained less competitive. The Centers admitted many fewer students from the lowest quartile of the high school graduates and drew most of their students from the second and third quartiles. Some students were denied any college credit enrollment. In this respect a state with a tradition of open access became even more restrictive than California or Florida.

Those students who were admitted did well. The VTAE had strong support from business, pleased with the employees they were hiring. The Centers had reported high transfer rates, and bachelor degree attainment for both transfers and native student at the University was high.

The Wisconsin Alternative

The fifth alternative, the Wisconsin system, is distinct in its unity and the strongly differentiated mission and purpose

assigned to each segment. It is noted for its broad access policies even under enrollment management. It is unique in its centers devoted totally to transfer education, with a stable, highly qualified full time faculty, an academic program and curriculum developed in conjunction with the universities, and attention to transfer policies. And it is one of the few states that continues to have a vocational system completely separate from two-year academic programs. It has been praised for its effectiveness, and criticized for its rigidity, and its focus on the needs of the state and the campuses before those of students. And it continues to be highly popular attracting over ninety percent of the higher education enrollment in Wisconsin each year.

CHAPTER THREE

COLLEGE GOING AND BACHELOR DEGREE ATTAINMENT PATTERNS

The relationship of state policies to the college going and bachelor degree attainment of high school graduates is the basic question of this research. If the college going and bachelor degree attainment rates of students have been similar across states irrespective of differences in state systems, then structure is not important. If, on the other hand, there are important differences in access and bachelor degree attainment, then structure makes a difference, and it is important to understand how structure mediates access and degree attainment. In particular we would like

to know if proportional reliance on two-year versus four-year campuses has been a factor in differences.

State level data show important differences in both college going and bachelor degree attainment in the five states, and point to differences in proportional reliance on two-year versus four-year campuses as an important factor. Our analysis begins with the state with the greatest reliance on community colleges, Florida, and then proceeds in descending order from California through Wisconsin.

The Florida Experience

The years of our study were marked by important changes in enrollment and admissions in Florida. And by the importance patterns of performance on the CLAST test.

Changes in enrollment. The number of Floridians graduating from high school remained steady between 1976 and 1980, varying only between 88,000 and 90,000. Then it dropped by 1984 to 82,000, and rose after 1986 to 93,000. Black students remained a constant 18-19% of the high school graduates, Hispanic students grew from 5.2% to 8.7%, and white and other students decreased from 75% in 1976 to 72% in 1988. [State of Florida, 1975-1990]

The percentage of high school graduates going on to some form of higher education in those same years rose from 43.7% to 55%, but this did not produce higher numbers until 1988 because from 1980-1986 it was a rising proportion of a declining base. There was,

however, a large increase in higher education enrollment in those years. It grew 57.2% overall, with black enrollment increasing 22%, Hispanic enrollment 172%, and white/other enrollment 54%. But it was fueled largely by increased out-of-state enrollment, which grew from 2.1% in 1980 to 12.2% in 1988, and by older people returning to school. [State of Florida, 1975-1990; State of Florida, 1981, 1985, 1989; State of Florida 1980, 1982, 1983, 1984, 1986]

Black students in 1975 had 37.8% of their enrollment at baccalaureate campuses and that rose to 43.4% in 1988. Hispanic and white/other enrollment moved in the opposite direction, declining at the baccalaureate level and increasing at the two-year level. The percent of Hispanics enrolling at the baccalaureate campuses decreased from 36.2% in 1975 to 33.3% in 1988, and White/other enrollment fell from 43.2% to 39.0% in 1988.

Changes in Admission Policies. Some of the factors underlying the shifts between four year and two-year enrollment have their source in changes in the state university system. In 1980 the system as a whole admitted 63% of its first time freshmen applicants, but by 1988 it was admitting only 56.3%. The mean ACT score for enrolling freshmen was 20.9 in 1980 but rose to 23.2 in 1988, while the mean SAT score changed from 957 in 1980 to 1,048 in 1988, and the mean GPA rose from 2.97 to 3.20. [State of Florida, 1981, 1985, 1989]

The changes were greatest at the University of Florida, Florida State, and Florida Agricultural and Mechanical University

(FAMU). Rising, but still accessible standards at FAMU made it more appealing as a predominantly black institution, and attracted black, Hispanic and white students. Its mean ACT score rose from 14.1 to 18.3, its SAT from 701 to 839, and its GPA from 2.6 to 2.8. Those changes enhanced its academic credibility but still allowed the admission of a broad group of students. However, FAMU accepted one quarter less applicants in 1988 than it had in 1980.

At the University of Florida the proportion of accepted applicants declined from 60.7 to 57.8%. The average ACT score rose from 23.9 to 26.1, average SAT score from 1039 to 1140, and average GPA from 3.1 to 3.5. At Florida State the proportion of accepted applications fell from 63% to 59%, the average ACT rose from 20.7 to 24.0, the SAT from 943 to 1,059, and the mean GPA from 2.9 to 3.2.

Changes at the other public university campuses were smaller but in the same direction, and all had mean ACT scores between 22 and 23 by 1988 and GPA's between 3.0 and 3.3. The combined effect of increasing admissions standards, and scarce space at the baccalaureate campuses, was to force more and more freshman enrollment down to the two-year campuses.

The CLAST Test. Data gathered by the Florida Department of Education on the passing rate of students taking the CLAST test make clear that the test has had a disproportional effect on minority students, making it more difficult for them to move from lower division to upper division. Evidence for this comes from two sources. The first is from a study of the October 1989 CLAST

cohort, showing the percent of students passing all four subtest in October 1989, and again in February 1992 after seven additional opportunities to take the test. While 75% of all white students passed the tests in October, 1989, and 93% by February, 1992, the proportions were quite different for black and Hispanic students. Only 41% of the black students, and 42% of the Hispanic students passed all four tests in October, 1989, and that proportion rose to only to 73% for Black students by February, 1992 and 75% for Hispanic students. [State of Florida, 1992] The test was an absolute barrier for three times as high a fraction of minority students.

It was also possible to look at first time examinees in 1990-91 and separate out community college from university students. Passing rates were lower for minority students at both sets of campuses, but were particularly low at the community colleges. [State of Florida, 1991d] Four-fifths of black students who had passed their community college courses for two years failed the test for entrance to the four year schools as did two-third of Hispanics.

	Community Colleges	Public Universities
White	62%	79%
Black	21%	42%
Hispanic	36%	60%

The combination of larger enrollments, scarce space, and higher admission standards, forced more students, and more minority

students in particular, to start at a community college and go through the transfer process. And the introduction of the CLAST test made it more difficult to move from lower division to upper division.

It is difficult to follow transfers in Florida because data is only available on transfers from the public community colleges to the state universities. This leaves open how many students transferred from private two year campuses, and how many community college students transferred to the private universities. The data that is available, however, show that transfers from the public community colleges to the state universities as a proportion of total credit enrollment has been quite low and falling, going from approximately 3.5% in 1980 to 2.2% in 1986 and 1988.

Data on the ethnicity of transfer students is for the entire population of transfers in the state university system, whether they entered in the current year or prior years, and not for the cohort of students transferring in a given year. Utilizing that imperfect data, minority transfers as a proportion of baccalaureate enrollment grew from 1977 to 1984 but then fell from 1985 to 1988.

The proportion of transfer students was lowest at FAMU, the historically black institution, hovering between 11% and 12.5%. After FAMU the campus with the lowest transfer group as a proportion of baccalaureate enrollment was the University of Florida. Overall, transfer students were 25% of its baccalaureate enrollment. Black transfers were a steadily declining proportion of the black enrollment, going from 15% in 1977 to 12.2% in 1988.

Hispanic transfers hovered around 33% of Hispanic enrollment throughout the years. White students were at the mean for the campus.

At Florida State transfer students were more abundant, averaging about 36% of the total enrollment. Black transfers were more numerous than at FAMU or the University of Florida, making up 26% of the black students in 1977, and 30% in 1984, but then fell back to 23% in 1988. Hispanics had a rising proportion of transfers at Florida State to 41% in the late 1980s. White and other students were at the mean for the campus.

Declines in the transfer cohort were matched by declines in bachelor degree attainment as a proportion of total higher education enrollment, which fell overall from 9.9% in 1975 to 7.2% in 1988. Because Florida is the state with the greatest proportional reliance on community colleges, any failure of the community colleges to either draw in students or facilitate transfer would have substantial implications for bachelor degree attainment in the state.

The tables that follow present our findings on college going and bachelor degree attainment in Florida within the constraints of the Florida higher education system. They examine percent of high school graduates going on to some form of higher education in Florida, the proportion of first time freshmen enrolling at baccalaureate and community college campuses, fall transfers from the public community colleges, and bachelor degree attainment over the years of our study. It is important to note that Florida was

the first state to mandate a test for high school graduation and has had the nation's lowest high school completion rate.

TABLE ONE

Percent of High School Graduates in Florida Going On To Some Form of Higher Education in Florida

1975	1980	1984	1986	1988
43.7	46.2	50.2	48.7	55.0

*Source: Florida Department of Education

TABLE TWO

Proportion of First Time Freshmen Enrolling at Baccalaureate and Community College Campuses in Florida

All Students

	1980	1984	1988
Baccal	33.3	26.9	23.3
Two Yr.	66.7	73.1	76.7

*Source: State University System of Florida.

TABLE THREE

Fall Transfers From Florida Public Community Colleges to the Public Baccalaureate Campuses in Florida As A Proportion of Total Credit Enrollment

All Students

1975	1980	1984	1986	1988
--	3.5%	3.2%	2.2%	2.2%

Transfers by Ethnicity

	1977	1980	1984	1986	1988
Black	7.5%	6.9%	6.0%	5.5%	5.5%
Hispanic	7.1%	8.3%	11.7%	11.4%	11.7%
White/o	85.4%	84.6%	82.3%	83.1%	82.8%

*No data is available on transfers to the private campuses.

**Source: State University System of Florida.

TABLE FOUR

Florida Bachelor Degree Attainment as a Proportion of Total Higher Education Enrollment

	1975	1980	1984	1986	1988
Total	9.9%	9.0%	8.9%	7.3%	7.2%
Black	6.3	7.6	6.8	5.7	4.8
Hisp.	7.8	6.7	6.3	6.0	5.5
Wh/oth	10.6	9.4	9.5	7.7	7.7

*Source: State University System of Florida

California College Going Patterns

One of the major problems researchers face in working with higher education data is the difficulty of separating out adult credit non-degree) enrollment from regular credit enrollment. We were not able to do so with the Florida data, but were more successful with the California and Illinois data because of the work of the California Post-Secondary Education Commission and the Illinois Community College Board. Therefore the data underlying this analysis excludes the large adult credit enrollment that can bias analyses in states such as California that have heavy adult credit enrollment at their community colleges.

California has consistently had a higher rate of college going than Florida, with 57% to 60% of the high school graduates going on to some form of higher education. This doubtless reflects the state's wealth and generous provision of very low cost colleges until recently. Since 95% of all first time freshmen from California enroll in-state, twelve percent more than in Florida, and 94% of these go to the public campuses, as compared with 84% in Florida, what happens in higher education in California, and in the public sector in particular, is even more important to the future of high school graduates in California. (Table Five)

TABLE FIVE

Percent of High School Graduates in California and Florida Going On To Some Form of Higher Education in California

	1978	1980	1984	1986	1988
Fla.	43.7	46.2	50.2	48.7	55.0
CALIF.	58.7	60.2	54.4	60.1	57.1

*Source: California Post-Secondary Education Commission, College Going Rates, 1978-1988; State Univ. System of Florida.

The proportion of first time freshmen enrolling in California at baccalaureate versus community college campuses has fluctuated somewhat, but hovered around the one-third baccalaureate to two-thirds community college enrollment policy set in the California Master Plan. There has been considerable variation, however, among ethnic groups and it is important to understand those differences. (Table 6)

TABLE SIX

Proportion of First Time Freshmen Enrolling at Baccalaureate and Community College Campuses in California and Florida, 1978-1988

All Students

	1978	1980	1984	1986	1988
Baccalaureate					
Florida	-	33.1	26.9	-	23.3
CALIF.	29.5	30.1	35.2	35.9	37.9
Community College					
Florida	-	66.7	73.1	-	76.7
CALIF.	70.5	69.9	64.8	64.1	62.1

By Ethnicity

California Only

	1984		1986		1988	
	Baccal	Other	Baccal	Other	Baccal	Other
Asian	54.4	45.6	54.0	46.0	56.8	43.2
Black	24.8	75.2	23.4	76.6	26.6	73.4
Hisp.	24.3	75.7	22.2	77.8	25.3	74.7
Wh/oth	32.9	67.1	30.8	69.2	31.3	68.7

*California Post-Secondary Education Commission; State University System of Florida.

The necessity for California students to compete among all high school graduates for scarce enrollment places at the public baccalaureate campuses was disproportionately favorable to Asian, white and other students, and an obstacle for Black and Hispanic students. The one quarter baccalaureate to three quarters two-year enrollment for Black and Hispanic students was substantially less

that the one-third to two-thirds for white and other students, or the fifty plus percent baccalaureate enrollment for Asian students.

When this is put together with transfer data from the community colleges to the four year segments the impact of where a student begins his or her college education in California becomes clearer. (Table 7)

TABLE SEVEN

Fall Transfers From California Community Colleges to the Public and Private Baccalaureate Campuses as a Proportion of Degree Credit Enrollment, 1981-1987, with Comparative Florida Data

	1981	1983	1986	1987
Univ. of Calif	0.6	0.6	0.7	0.8
C.S.U.	3.6	3.3	4.1	4.2
Privates	0.8	0.3	0.9	1.3
Total	5.0	4.2	5.7	6.3

Florida Transfers to Public Baccalaureate Campuses in Florida

1980	1984	1986	1988
3.5	3.2	2.2	2.2

*Source: CPEC, 1987 Update; State University System of Fla.

Looked at by system and sector, the California transfer rates are illuminating, for they are less than one percent to the University of California campuses, between three and four percent to the CSU campuses, and one percent to the private colleges. This indicates more clearly than any previous data the critical

importance of starting at a four year campus to assure a bachelor's degree, and the very low probability that community college students have of accessing the educational and adult role opportunities available to students start at the baccalaureate campuses. It is important in considering this to remember that in California and Florida, many students who graduate from high school in the upper half of all high school graduates must go to the community colleges, not just students of lower ability.

Differences in transfer by ethnicity can best be seen by focusing on a metropolitan area where there are large minority populations. Data from metropolitan Los Angeles for 1986 and 1987 are useful for this purpose. They show substantial differences in transfer rates by ethnicity. (Table Eight)

TABLE EIGHT

Ethnic Patterns in Enrollment and Transfer From Metropolitan Los Angeles Public Community Colleges to the Public Baccalaureate Campuses in California

	1986			1987		
	2 Yr. %Enr. 1984	%Tr. 1986	Diff.	2 Yr. %Enr. 1984	%Tr. 1987	Diff.
Asian						
UC	10.1	13.0	+2.9	10.1	12.6	+2.5
CSU	10.1	10.4	+0.3	10.1	11.7	+1.6
Black						
UC	8.9	4.0	-4.9	8.9	3.9	-5.0
CSU	8.9	6.6	-2.3	8.9	6.8	-2.1
Hispanic						
UC	15.8	10.8	-5.0	15.8	11.2	-4.6
CSU	15.8	11.9	-3.9	15.8	12.2	-3.6
White/oth						
UC	65.2	72.2	+7.0	65.2	72.3	+7.1
CSU	65.2	71.1	+5.9	65.2	69.3	+4.1

*Source: CPEC, 1987 Update.

White students were clearly more successful in transferring than any other students, followed by Asian students. Both groups transferred in higher proportions than their representation in the total two-year enrollment, while black and Hispanic students were transferring in much smaller proportions. A large proportion of white and Asian students transferred to the University of California campuses, while the largest group of Black and Hispanic students transferred to the less selective CSU campuses.

These enrollment and transfer patterns produced very different bachelor degree attainment rates. Looking at bachelor degree attainment as a proportion of total higher education enrollment two facts are clear: degree attainment rates were very low for all students, but they were particularly low for Black and Hispanic students. (Table 9)

TABLE NINE

Bachelor Degree Attainment in California and Florida as a Proportion of Total Higher Education Enrollment

CALIFORNIA

	1975	1980	1984	1986
Asian	7.4%	7.0%	6.3%	5.9%
Black	3.3%	3.0%	3.4%	3.4%
Hispanic	3.2%	3.4%	3.6%	3.5%
White/oth.	6.7%	6.6%	7.3%	6.4%
ALL GROUPS	6.2%	6.0%	6.2%	5.8%
FLORIDA	9.9	9.0	8.9	7.3
Black	6.3	7.6	6.8	5.7
Hispanic	7.8	6.7	6.3	6.0
White/oth	10.6	9.4	9.5	7.7

*Source: U.S. Dept. of Education, HEGIS/IPEDS Data.

The data show that only 3.2% to 7.4% of the students from any ethnic group in California received a bachelor's degree, and the state-wide average never exceeded 6.2%. California's bachelor degree attainment rate was even lower than Florida, a function perhaps of the more selective lower division enrollment at the baccalaureate campuses in Florida where fewer students finish high school and community college enrollment is more difficult. Once again Asian and white students in California fared the best, while Black and Hispanic students lagged far behind.

Both Florida and California made a large reliance on community colleges and were highly dependent on the transfer function working well to generate broad bachelor degree attainment. The other three states in our study Illinois, Indiana, and Wisconsin either made a smaller investment in community colleges, or none at all. If their bachelor degree attainment rates were the same or lower than Florida and California, then the large investment of the latter in community colleges was not a mediating factor in their low bachelor degree attainment. If, on the other hand, the different structures in Illinois, Indiana, and Wisconsin are associated with higher bachelor degree attainment, then our hypothesis that structure is an important intervening variable in bachelor degree attainment has important support. It is to this question that we now turn.

Illinois College Going Patterns

Illinois made provision for a larger proportion of its high school graduates to start at a four year campus than either Florida or California, and admission to its baccalaureate campuses has been moderately selective. Our data show these policies were associated with differences in access and bachelor degree attainment.

TABLE TEN

Percent of In-State High School Graduates Going On To College in Illinois, Florida, and California

	1978	1980	1984	1986	1988
Florida	43.7	46.2	50.2	48.7	55.0
Calif.	58.7	60.2	54.4	60.1	57.1
ILLINOIS	82.0	71.5	73.0	75.2	76.9

*Source: IBHE, Data Book on Illinois Higher Education, 1979-1989; CPEC, 1987 Update.

A larger proportion of high school graduates in Illinois have been going on to higher education (TABLE 10). And the proportion of high school graduates attending four year campuses has been higher, but not by as large a factor as one might have imagined given the differences in admissions policies. (Table 11) This may reflect the shortage of campuses in high population areas.

TABLE ELEVEN

Proportion of High School Graduates Enrolling in Four Year and Two Year Campuses in Illinois, Florida, and California, 1978-1988

	1978	1980	1984	1986	1988
BACCAL.					
Florida	-	33.3	26.9	-	23.3
Calif.	29.5	30.1	35.2	35.9	37.9
ILLINOIS	30.5	37.7	40.9	42.5	39.4
TWO-YR.					
Florida	-	66.7	73.1	-	76.7
Calif.	70.5	69.9	64.8	64.1	62.1
ILLINOIS	69.5	62.3	59.1	57.5	60.6

*Source: IBHE, Data Book on Illinois Higher Education, 1977-1989;

CPEC, 1987 Update.

The proportion of minority students enrolled at the four year campuses has also been higher in Illinois. (Table Twelve) While 25 to 28 percent of the Black enrollment in California was at the four year campuses, in Illinois it was between 31 and 41 percent. Similarly, while Hispanic baccalaureate enrollment in California ranged between twenty-two and twenty-five percent, it was between forty-five and forty-nine percent in Illinois, with a sudden drop to twenty-three percent which our research suggests is an error in official data entry. The baccalaureate enrollment of white and other students in Illinois was similarly higher.

TABLE TWELVE

Proportion of First Time Freshmen Enrolling at Baccalaureate Campuses in Illinois and California, 1975-1988

	1975	1980	1984	1986	1988
ASIAN					
Calif.			54.4	54.0	56.8
BLACK					
Calif.			24.8	23.4	26.6
ILLINOIS	41.1	42.9	44.7	31.3	31.5
HISPANIC					
Calif.			24.3	22.2	25.3
ILLINOIS	45.0	48.7	46.3	23.2	33.4
WHITE					
Calif.			32.9	30.8	31.3
ILLINOIS	48.6	46.5	47.4	44.2	35.2

*Source: IBHE, Data Books on Higher Education; CPEC, 1987 Update

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There were also differences in the transfer rate from the community colleges as a proportion of degree credit enrollment.

(Table Thirteen) California had the highest transfer rate to all four year campuses, Illinois the second, and Florida the lowest.

TABLE THIRTEEN

Transfers From the Community Colleges to the Public and Private Baccalaureate Campuses in Illinois, Florida, and California

	1981	1984	1986	1988
Florida				
Pub. Univ.	3.50	3.20	2.20	2.20
California				
Overall	4.99	4.20	5.73	6.32
U. of Calif.	0.57	0.58	0.73	0.82
C.S.U.	3.60	3.30	4.10	4.20
Privates	0.82	0.32	0.90	1.30
ILLINOIS				
Overall	3.5	4.0	4.4	4.2
Pub. Univ	2.4	2.8	2.9	2.7
Privates	1.1	1.7	1.5	1.5

*Source: IBHE, Data Book on Higher Education; CPEC, 1987 Update; Fact Books, State University System of Florida.

This fundamental set of differences in enrollment and transfer were associated with important differences in graduation. (Table Fourteen) When bachelor's degrees for all students were analyzed as a percentage of the total higher education enrollment they varied between 6.2% and 5.8% in California, between 9.9% and 7.2% in Florida, and between 9.7% and 8.1%. Illinois had the highest rate in 1988, followed by Florida. Black and Hispanic students in fared better in Illinois than in California until 1986, when their rate fell precipitously in Illinois, and only began to rise for Blacks in 1988.

TABLE FOURTEEN

Bachelor Degree Attainment as a Proportion of Total Higher Education Enrollment in Illinois, Florida, and California, 1975-1988

	1975	1980	1984	1986	1988	CHANGE
ALL STUDENTS						
Florida	9.9	9.0	8.9	7.3	7.2	-2.7
California	6.2	6.0	6.2	5.8	5.8	- .4
ILLINOIS	9.7	8.9	9.0	7.9	8.1	-1.6
BLACK						
Florida	6.3	7.6	6.8	5.7	4.8	-1.5
California	3.3	3.0	3.4	3.4	3.0	- .3
ILLINOIS	5.6	5.3	5.0	3.5	4.3	-1.3
HISPANIC						
Florida	7.8	6.7	6.3	6.0	5.5	-2.3
California	3.2	3.4	3.6	3.5	3.5	+ .3
ILLINOIS	6.3	5.4	5.1	3.0	3.0	-3.3
WHITE/OTHER						
Florida	10.6	9.4	9.5	7.7	7.7	-2.9
California	6.7	6.6	7.3	6.4	6.4	- .3
ILLINOIS	8.8	9.5	9.7	9.0	9.1	+ .3

*Source: U.S. Dept. of Education; HEGIS/IPEDS Data.

These findings point to a clear association between the structure of higher education in Illinois and a higher percentage of students going on to higher education, a larger percentage enrolling at the baccalaureate campuses, and a higher bachelor degree attainment rate for all students as a proportion of total enrollment. (Florida did have a higher rate of bachelor degrees for the very small proportion of highly talented black and Hispanic students it allowed into its four year campuses.)

Indiana College-Going Patterns

Indiana and Wisconsin rejected the community college model with its associated high admission standards at the baccalaureate campuses, and the important question was how their access and bachelor degree outcomes varied from those in Florida, California, and Illinois. Indiana's use of a separate set of public vocational colleges and a very accessible set of regional four year campuses was not associated with a higher proportion of high school graduates going on to some form of higher education, but it was associated with a higher proportion of high school graduates enrolling at the baccalaureate campuses, and a higher rate of bachelor degree attainment as a percent of overall enrollment. (Table 15)

TABLE FIFTEEN

Percent of In-State High School Graduates Going On To College in Indiana, llinois, Florida, and California

	1978	1980	1984	1986	1988
Florida	43.7	46.2	50.2	48.7	55.0
Calif.	58.7	60.2	54.4	60.1	57.1
Illinois	82.0	71.5	73.0	75.2	76.9
INDIANA	-	42.5	47.5	44.3	44.5

*Source: Florida Department of Education, CPEC, 1987 Update, IBHE, Data Book on Illinois Higher Education, 1979-1989; Indiana Department of Education.

The proportion of Indiana college goers enrolled at baccalaureate campuses was much higher than in Illinois, California, and Florida because baccalaureate education was the choice of most Hoosiers, and admissions policies and cost made that possible. Vocational enrollments never attracted more than a quarter of the students.

TABLE SIXTEEN

Proportion of Home State First Time Freshmen Enrolled at Baccalaureate and Other Campuses in Indiana, Florida, California, and Illinois, 1978-1988.

	Baccalaureate				Other			
	Fla.	Ill.	Calif.	IND.	Fla.	Ill.	Calif.	IND.
1978	-	30.5	29.5	-	-	69.5	70.5	-
1980	33.3	37.7	30.1	73.2	66.7	62.3	69.9	26.8
1984	26.9	40.9	35.2	74.2	73.1	59.1	64.8	25.8
1986	-	42.5	35.9	76.8	-	57.5	64.1	24.0
1988	23.3	39.4	37.9	77.0	76.7	60.6	62.1	22.3

*Source: U.S. Department of Education, HEGIS/IPEDS Data. There is some discrepancy between this data and State of Indiana data which is being investigated.

This higher enrollment at the baccalaureate campuses is directly reflected in differences in bachelor degree attainment as a percentage of total higher education enrollment. (Table 17)

TABLE SEVENTEEN

Bachelor Degrees As A Proportion of Total Higher Education Enrollment in Indiana, Florida, California, and Illinois 1975-1986

	Florida	California	Illinois	Indiana
1975	9.9	6.2	9.7	14.1
1980	9.0	6.0	8.9	12.7
1984	8.9	6.6	9.0	12.8
1986	7.3	5.8	7.9	12.5
1988	7.2	5.8	8.1	11.7

*Source: U.S. Dept. of Educa., HEGIS/IPEDS Data.

Black and Hispanic students as well as white students had higher bachelor degree attainment rates in Indiana than in the other states. Between six and seven percent of all of the enrolled Black students received bachelor degrees, between nine and eleven percent of the Hispanic students, and twelve and fourteen percent of the white students. (Table 18)

TABLE EIGHTEEN

Bachelor Degrees as a Percent of Total Enrollment by Ethnicity in Florida, California, Illinois, and Indiana, 1975-1986

	Florida	California	Illinois	Indiana
ASIAN				
1975		7.4		
1980		7.0		
1984		6.3		
1986		5.9		
1988		6.9		
BLACK				
1975	6.3	3.3	5.6	7.8
1980	7.6	3.0	5.3	6.2
1984	6.8	3.4	5.0	7.1
1986	5.7	3.4	3.5	6.9
1988	4.8	3.0	4.3	6.5
HISPANIC				
1975	7.8	3.2	6.3	11.2
1980	6.7	3.4	5.4	9.0
1984	6.3	3.6	5.1	10.7
1986	6.0	3.5	3.0	10.3
1988	5.5	3.5	3.0	9.3
WHITE/oth				
1975	10.6	6.7	8.8	14.5
1980	9.4	6.6	9.5	13.2
1984	9.5	7.3	9.7	13.1
1986	7.7	6.4	9.0	12.9
1988	7.7	6.4	9.1	12.0

*Source: U.S. Dept. of Educa., HEGIS/IPEDS Data.

College Going in Wisconsin

When Wisconsin rejected the community college model it took a

different approach. Rather than dividing post-secondary education almost completely between the universities and the vocational-technical campuses, it provided the three pronged system of public vocational-technical campuses, two year campuses devoted solely to academic education and controlled by the university system, and public universities; and its system of governance treated the two year centers and the universities as one operational endeavor.

Wisconsin has had very high college going from its high school graduates, strong freshman baccalaureate and two-year academic enrollment, strong transfer, and high bachelor degree attainment. (Table Nineteen)

TABLE NINETEEN

Percent of In-State High School Graduates Going On To College in Wisconsin, Florida, California, Illinois, Indiana

	1978	1980	1984	1986	1988
Florida	43.7	46.2	50.2	48.7	55.0
Calif.	58.7	60.2	54.4	60.1	57.1
Illinois	82.0	71.5	73.0	75.2	76.9
Indiana	-	42.5	47.5	44.3	44.5
WISCONSIN	-	59.4	62.3	64.7	73.7

*Source: Florida Department of Education, CPEC, 1987 Update, IBHE, Data Book on Illinois Higher Education, 1979-1989; Indiana Department of Education; Wisconsin Department of Education

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Wisconsin was second only to Illinois from 1984 onward in percent of high school graduates going on to some form of higher education in the state, far outstripping Florida and California

with their extensive community college systems, and Indiana with its two level system. Its proportion of home state freshmen enrolled at baccalaureate campuses was second only to Indiana. (Table 20)

TABLE TWENTY

Proportion of Home State First Time Freshmen Enrolled at Baccalaureate Campuses in Wisconsin, Florida, California, Illinois, and Indiana, 1978-1988.

	Fla.	Calif.	Ill.	Ind.	Wisc.
1978	-	29.5	30.5	-	-
1980	33.3	30.1	37.7	73.2	55.3
1984	26.9	35.2	40.9	74.2	55.0
1986	-	35.9	42.5	76.8	53.2
1988	23.3	37.9	39.4	77.0	51.6

*Source: U.S. Department of Education, HEGIS/IPEDS Data.

Where Wisconsin particularly excelled was in fall transfers from the two year centers to the baccalaureate campuses as a proportion of total higher education enrollment. (Table 21)

TABLE TWENTY-ONE

Transfers From the Two-Year Colleges to the Public and Private Baccalaureate Campuses in Wisconsin, Florida, California, Illinois, and Indiana, 1980-81 to 1988.

	1981	1984	1986	1988
Florida				
Pub. Univ.	3.50	3.20	2.20	2.20
California				
Overall	4.99	4.20	5.73	6.32
U. of Calif.	0.57	0.58	0.73	0.82
C.S.U.	3.60	3.30	4.10	4.20
Privates	0.82	0.32	0.90	1.30
Illinois				
Overall	3.5	4.0	4.4	4.2
Pub. Univ	2.4	2.8	2.9	2.7
Privates	1.1	1.7	1.5	1.5
WISCONSIN				
Overall	6.9	9.0	9.6	9.9

*Source: Fact Books, State University System of Florida; CPEC, 1987 Update; IBHE, Data Book on Higher Education; The University of Wisconsin Student Statistics, Wisconsin Association of Independent Colleges and Universities.

Its bachelor degree attainment as a proportion of total higher education enrollment was second only to Indiana from 1986 on, superseding Florida, California, and Illinois. (Table 22)

TABLE TWENTY-TWO

Bachelor Degrees As A Proportion of Total Higher Education Enrollment in Wisconsin, Florida, California, Illinois, and Indiana, 1975-1986

	Florida	California	Illinois	Indiana	WISC.
1975	9.9	6,2	9.7	14.1	-
1980	9.0	6.0	8.9	12.7	7.9
1984	8.9	6.6	9.0	12.8	8.7
1986	7.3	5.8	7.9	12.5	8.6
1988	7.2	5.8	8.1	11.7	9.6

*Source: U.S. Dept. of Educa., HEGIS/IPEDS Data.

THE IMPACT OF STRUCTURE

One of the strongest arguments in the literature for community colleges is that they increase the proportion of high school graduates who continue their education. Our data show that Indiana, the state with the smallest provision for two year enrollment had the lowest proportion of high school graduates continuing their education. But Florida, the state with the heaviest reliance on community colleges had the second lowest, and California the third.

The states with the highest proportion of high school graduates continuing their education were Illinois, with a moderate balance between community colleges and accessible public and private four year campuses, and Wisconsin with no community

colleges, but an accessible set of four year campuses and a well developed set of two year opportunities divided between academic centers that are an integrated part of the University of Wisconsin, and public vocational-technical campuses closely integrated with their local communities. In other words, higher post-secondary enrollment is associated with less use of community colleges, or avoiding them altogether.

The second argument in the literature is that community colleges serve as a workable alternate and less expensive route to the bachelors degree. This was not supported by our findings. We found that those states with the least reliance on community colleges had high freshman baccalaureate enrollment and higher bachelor degree attainment, while those states with the largest proportional reliance on community colleges frequently had low freshman baccalaureate enrollment and much lower bachelor degree attainment. (Tables 20,22)

These patterns held true for all students but were particularly so for minorities. In 1988, only 24.7% of the black college students were represented in the four year campuses enrollment in California, 43.5% in Florida (because of the role of FAMU as a historically black institution), 34.4% in Illinois, but 45.6% in Wisconsin, and 75.5% in Indiana.

Hispanic students had similar enrollment patterns with 24.5% of their enrollment on the four year campuses in California, 32.4% in Florida whose predominantly Cuban Hispanic community is less disadvantaged than other Hispanic populations, and 22.9% in

Illinois, but 61.0% in Wisconsin, and 87.2% in Indiana. (It is important to note that Wisconsin and Indiana have small Hispanic populations.) White and other students in each of the states had a higher proportion of their enrollment on the four year campuses but their overall pattern was the same. They had 33% of their enrollment at the baccalaureate campuses in California, 39.0% in Florida, 44.9% in Illinois, 63.2% in Wisconsin, and 84.1% in Indiana.

These racial and ethnic differences in enrollment were repeated in bachelor degree attainment. In California in 1988 bachelor degree attainment as a proportion of total enrollment was 6.4% for white and other students, 3.0% for black students and 3.5% for Hispanics. In Florida it was 7.7% for whites, 4.8% for blacks and 5.5% for Hispanics. In Illinois it was 9.1% for whites, 4.3% for blacks and 3.0% for Hispanics. In Indiana it was 12.0% for whites, 6.5% for blacks and 9.3% for Hispanics. Wisconsin does not collect degree data by ethnicity. (Table 18)

If the community colleges in the states we studied served as a viable alternate route to the bachelors degree then those states with the greatest reliance on community colleges, particularly those that forced students not in the upper quartiles of their high school class to start at a community college, i.e., Florida and California, should have had at least as high or higher bachelor degree attainment rates than states without community colleges, but that was not so. The proportion of students transferring from the community colleges to baccalaureate campuses was low for all

states, with Florida having the lowest rates, and California rates substantially lower than those in Wisconsin.

There are two possible explanations. First, that differences in the students account for the differences in enrollment patterns and in graduation. Second, that structural differences in the higher education shaped where students were able to gain access and bachelor degree attainment.

There were differences in the overall student body in the states we analyzed. California had the highest percentage of minorities in its colleges, 33.0% in fall 1990 according to the Almanac of the Chronicle of Higher Education, while Florida had 22.7%, Illinois 22.8%, Indiana 8.5%, and Wisconsin 6.6%. California had a public school enrollment well over half minority.

The average SAT/ACT test score for high school seniors was highest in California and Florida, a mean composite SAT of 897 and 882 respectively, and lower in Illinois, 790, Wisconsin 830, and Indiana 865. (ACT scores for Illinois and Wisconsin were converted to SAT scores by American College Testing Program for this study). [Chronicle of Higher Education, August 28, 1991]

The other argument, that structural differences in the systems of higher education in the five states contributed in important ways to the differences in access and bachelor degree attainment we observed, was supported in several important ways in this research. First, the impacts of structure were strongly related to white as well as minority student enrollment patterns, although they had a stronger effect on minority students. Second, in those states

where the smallest proportion of students had access to the four year campuses bachelor degree attainment was lowest. It rose in the other states in proportion to broader access to the four year campuses. It was modestly higher in Illinois where there was still strong reliance on community colleges but a larger proportion of students had access to the public and private universities, and substantially higher in Indiana and Wisconsin.

Third, those students who started at a four year campus had an overwhelmingly higher probability of achieving a bachelors degree. Transfer as a proportion of total higher education enrollment was only two to ten percent in a given year, and in most cases was between two and six percent. Fourth, where adult eduction and vocational technical education were separated from two year general or college transfer programs, and the two-year programs were either located on a four year campus, or were placed on separate campuses with full time faculty as part of a total university system, bachelor degree attainment was much higher. These findings do not deny differences in students, but suggest that over and above those differences there is an independent effect of structure.

They suggest very specific structural modifications. They point to the need to increase the proportion of students who begin at a four year campus. Where two year programs are an important segment of a state's higher education program, separate transfer education from vocational-technical and adult education was clearly preferable. The advantages of this in Wisconsin and Indiana included focused mission and purpose, hiring faculty that were

practitioners at the vocational campuses, and university-level for the two-year academic program, structuring the curriculum with the university academic program and transfer in mind at the latter, providing both faculty and students in the two-year academic program with the expectation that transfer would take place and that their efforts were purposeful and fulfilling, and providing a greater ability to monitor and be accountable for the educational endeavor at both the vocational and academic transfer campuses.

Were Differences in Funding a Factor?

The question of whether differences in funding were involved is an important one, and our data shed some light on the issue. Our financial measures were tax capacity, tax effort, tax revenue per student, higher education appropriations as a percent of tax revenue, higher education appropriations per student, and tuition as a percent of appropriation and tuition. And we put them in the context of high school graduates per 1,000 population, and annual FTE students in higher education per 1,000 population.

Our context variables showed that Wisconsin and Indiana had the highest number of high school graduates per 1,000 population of the states in our study, Illinois was in the middle, and Florida and California had the least (Appendix, Table 23). When we looked at annual FTE students in higher education per 1,000 population, however, California and Wisconsin had the highest rate. Illinois again was in the middle, followed by Indiana and then Florida

(Appendix, Table 24). [State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144]

Florida and California had the highest tax capacity of the five states while Indiana and Wisconsin had the lowest (Table 25). Wisconsin and Illinois made the greatest tax effort, however, while Indiana and California made the least. (Table 26). On the issue of tax revenues per student Florida and Illinois were the highest, California was in the middle, and Indiana and Wisconsin were the lowest (Table 27). [State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144]

California and Wisconsin had the highest higher education appropriations as a percent of tax revenue, with Illinois in the middle, and Florida and Indiana bringing up the rear (Table 28). But on the more specific issue of higher education appropriations per student Florida and California had the highest, Illinois again was in the middle, and Indiana and Wisconsin had the lowest (Table 29). In addition California and Florida had the lowest tuition as a percent of appropriation plus tuition, while Indiana and Wisconsin the highest (Table 30). [State Profiles: Financing Public Higher Education 1978-1990, pp. 100, 106, 109, 145]

This shows that the states with the highest tax capacity, the highest higher education appropriation per student, and lowest tuition as a percent of appropriation plus tuition, California and Florida, had the lowest bachelor degree attainment rates. The states with lower appropriations and higher tuition, Illinois, Indiana and Wisconsin, had higher bachelor degree attainment rates.

Differences in funding, therefore, did not determine degree attainment rates.

Our findings lead us to believe that institutional arrangements were an important factor in the differences we observed. They suggest some important ways those institutional arrangements mediated opportunity and suggest other analyses that could shed further light on the issue. Where community colleges were prevalent, both freshman and transfer admission requirements at the public baccalaureate campuses were higher than in states without a community college system. Reliance on community colleges not only forced large numbers of students to start at a community college, but made transfer as selective as initial entry.

Thus students initially excluded form a baccalaureate campus had to qualify subsequently at as high, or higher, a level than the one they were unprepared for in the first place. The academic experience at the community college can not equal the teaching-learning experience at the four year campuses in depth and breadth of the academic program, faculty quality in the rigor of reading, writing, and analytical thinking, in library and laboratory resources and experiences.

Therefore students at the community college have to make up a deficit with an educational experience that does not often provide the context for doing so. This has reduced the number of students eligible for the baccalaureate pool at the upper division level, and therefore the number of students eligible for the bachelor's graduation.

The structural differences include a dispersed mission at the community colleges with shifting institutional priorities based on enrollment pressure that in the last decade has emphasized vocational and adult education over general and transfer education often to the detriment of the latter. Another is a high proportion of part time faculty at the community colleges who do not come together to develop a common vision or academic program, and are not available to provide sustained academic or transfer support to students. Student peer groups do not strongly support the transfer goal.

In addition students at a community college face a host of problems associated with transferring. These include lack of knowledge of the general transfer requirements of baccalaureate campuses, or the special requirements of specific programs. It is particularly difficult for transfer students to gain access to limited enrollment programs on the four year campuses. There are uncertainties about financial aid, and about welcome and fit on the transfer campus.

Structure can also have positive effects. Where general and transfer education was separated from vocational and adult education in Indiana and Wisconsin, and access to the baccalaureate campuses was facilitated through moderate admissions policies, a different educational experience and environment for transfer was established. Students attended a campus devoted to transfer education. Everyone on the campus: administrators, faculty, students, knew that transfer was the purpose of the educational

endeavor, and that the institution would be held accountable for its record in facilitating transfer and the subsequent bachelor degree attainment of its students.

This focus, the expectations associated with it, and its accountability stand in stark contrast to the institutional experience of community colleges that have insisted on as broad a set of missions as possible, have downplayed expectations, and insisted that they be held accountable only for giving access to their broad array of offerings, not for outcomes. Often they argue that their diverse and diffuse missions, student body, and programs make it unfair to hold them accountability for transfers.

Campuses devoted to transfer education not only had a specific mission and purpose, they also had a high proportion of stable, full-time faculty with educational credentials approaching those of faculty on the four year campuses. Because the two-year campuses and their faculty were part of the state university system, faculty were much more in tune with general education and upper division programs at the public and private colleges and universities, and met with their counterparts on the four-year campuses in their fields to discuss academic program and curricula.

Administrators, faculty, students, and society expect those two-year students to transfer, to do well on the four year campuses, and to obtain a bachelor's degree. And that expectation sustains the students, increasing their persistence and confidence; and it makes them more welcome on the four year campuses.

Our interviews also suggested that concentrating vocational

and transfer education on separate campuses had economies that worked to the benefit of quality as well as fiscal responsibility. At the transfer campuses there was a sufficient number of students on a concentrated set of campuses to generate stable enrollments, the full time faculty, and an adequate academic program, in ways that would not have been possible had resources been dispersed to a larger number of campuses with smaller and less stable enrollments. The same was true at the vocational campuses. Concentrating vocational enrollment made it possible to offer more quality programs with greater flexibility in response to changing economic needs; to provide better equipment, and, operating outside of academia, a faculty that could be changed as the economy changed. [Portch, 1990; Paris, 1985; State of Wisconsin, 1990a, 1990c]

Offering two year programs on the four year campuses was also more productive in generating bachelor degrees than community colleges. In this case two-year and four-year students could take the same or parallel courses, there was close curricular articulation, students were encouraged to transfer by their familiarity with the baccalaureate campus, and had greater confidence that they could succeed because of the close integration of their curriculum with the regular lower division program.

Focused mission, clear expectations, direct accountability, economies that translated into quality faculty, curricular program and supporting resources, and substantive articulation, were the variables most closely associated with higher bachelor degree

attainment, and each was directly mediated by structure.

The Source of Structure

It is important to remember from our initial discussion of the five structures of the five state systems that they emerged only in small part from educational rationales and much more from historical circumstances, the professional desires of the elite campuses, and efficiency rationales imposed by the states. There was no inherent logic of teaching and learning undergirding those structures in spite of the prestige and power that would crystallize around the institutions. Therefore changes to those structures would not violate educational or technical necessities, only conventions that have served particular professional, political and student interests well, but have not met the needs of many students seeking bachelor degrees.

POLICY RECOMMENDATIONS

Our policy recommendations proceed from the basic finding of our research that at present the only route to a bachelor's degree with a high probability of success is to begin at a baccalaureate campus. Therefore our first recommendation is to encourage as much freshman four year enrollment as possible by providing more public baccalaureate campuses, and ensuring that a sufficient number of them are geographically accessible and have moderate access

policies.

Where a state has already made a large investment in community colleges, and does not want to convert some to four year campuses, we recommend dividing them by mission and purpose into a set of vocational campuses and a set of transfer campuses, with adult basic education located separately, on the vocational campuses, or on outreach centers on high school campuses when school is not in session.

Our third recommendation is to make the transfer campuses part of a state university system, so that governance, faculty hiring, development of academic program, and transfer performance take place under state university norms and oversight.

We recommend that the vocational campuses be organized under a separate state board of vocational, technical, and adult education, with local boards sensitive to evolving regional economic needs advising the campuses on their vocational programs.

Our fifth recommendation is to have the state force attention to assigned mission by holding the campuses accountable for their mission and the fulfillment of it, and by providing the resources appropriate for each mission in amounts sufficient to ensure a quality program. Until states end the practice of inferior public school education for minority and poor children, higher education must share some of the responsibility.

We recommend provision of a one to two year remedial program at the two-year campuses, with financial aid, for students needing remediation, with standards for completion of the remediation

program that will ensure success in the regular two-year transfer program.

We recommend a similarly high set of standards for the two-year transfer program, so that students who complete it can perform well at baccalaureate campuses with selective and very selective admissions should they choose to apply there.

We recommend incentives to students to complete a full two-year program at the transfer campuses in preparation for transfer, and suggest that some of these incentives be academic in the form of preferential access to programs of their choice at the four-year campus, and others financial in the form of additional state aid.

Most of all, we recommend that the states hold all of their public campuses accountable for fulfilling their educational purposes, and for this purpose adopt as an outcome measure for accountability not how many students are admitted, but how many students are able to complete the educational goal they set for themselves. In particular, how many students seeking a bachelor's degree are able to achieve it. Good surveys of student plans and data systems that permit following students among institutions and into the job market are needed for this purpose.

States have been very lax in holding their public campuses accountable, and where they have held them accountable it has been for financial efficiency not for efficacy in achieving the educational goals of students and society.

Other Analyses That Could Shed Light on the Power and Effects of Institutional Arrangements

Two kinds of analyses would be particularly helpful in developing our understanding of how institutional arrangements mediate the educational experience. The first is a study of the lower division experience that compares the student experience at three different kinds of community colleges - urban, suburban, and small town/rural - with that at transfer centers such as Wisconsin's and at four year campuses utilizing a variety of settings, a liberal arts college, comprehensive, doctoral-granting, and research universities. The focus of the research would be on how institutional arrangements mediate faculty, academic program, the classroom experience - in texts, assignments, teaching, level of thinking and writing, standards, examinations, supporting resources - and the connectedness of the lower division program to a coherent rationale for lower division education, and to what is necessary for the upper division experience. The goal would be to specify the differences and propose ways to increase the effectiveness of community colleges in the transfer process.

The second is an institutional and policy study of what multiple missions have meant for community colleges. It would focus on the demands multiple missions have made, how different kinds of community colleges have responded, and how the institutional arrangements and policies multiple missions have necessitated have differed from those at single mission two-year

centers and four year baccalaureate campuses.

In addition there is a need to understand what would be involved in changing a traditional set of community colleges into separate vocational and transfer systems, with the latter a distinct but integrated component of the public university system. This research would map necessary changes, identify the kinds of problems that would arise with regard to faculty/staff and their unions, facilities, transportation for students. It would project monetary and non-monetary costs, identify the kinds of support and incentives necessary to carry out such a change, and the policies to implement change. One possibility to be examined in this research would be feasibility and costs of converting some two-year to four-year campuses.

This body of research would speak to four important theoretical questions. What is the role of focus in structure and in effectiveness? What is the span of missions that can effectively be encompassed within an educational institution? What is the relationship between institutional focus and the nature of the classroom experience? What kinds of institutional arrangements facilitate or inhibit focus and effectiveness?

It would examine some of the most important practice questions today, particularly to what extent and in what ways the community college transfer curricula has been remedial, or comparable to the four year lower division curriculum, and how this has affected transfer and bachelor degree attainment. It would examine the extent to which articulation has been largely procedural with

attention to academic program titles, versus substantive with attention to curriculum, the educational experience, and an effective transition to upper division work.

It would illuminate in what ways the community college lower division classroom experience, and that at the four year campuses, have been similar or different, with what positive and negative effects, laying to rest assumptions and assertions on both sides of an issue that has generated a lot of words but no data. It would identify the kinds of problems that arise for community colleges because of their multiple missions, the different ways various community colleges have sought to cope with those problems, and offer an analysis of the institutional arrangements and policies that have been utilized or could be utilized to cope with them. And it would provide a feasibility study of institutional change.

Most important the research can suggest immediate and important directions for policy and practice. It would provide specific recommendations for how to handle the remedial/comparable problem community colleges face and for what needs to be done to make articulation substantive as well as procedural. It will suggest what kind of policies and institutional arrangements can best facilitate baccalaureate transfer and bachelor degree attainment for students starting at a traditional community college. And what would be involved in disaggregating a traditional community college system and setting up separate vocational and transfer systems, with the latter a distinct,

integrated, component of the public university system, the structural arrangement associated with high enrollment and the highest bachelor degree attainment in this research.

Taken together this research can inform theory, policy, and practice in the areas most critical for enhancing effective learning and bachelor degree attainment for all students and we propose it as a very important research agenda to meet the most critical problems raised in our study.

APPENDIX A

TABLE 23

High School Graduates Per 1,000 Population

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	11.4	10.4	9.0	8.1	8.2
California	13.6	12.1	11.1	9.9	9.4
Illinois	14.5	13.5	13.0	11.5	11.5
Indiana	15.5	14.6	14.1	11.9	12.4
Wisconsin	17.0	16.3	14.9	13.5	12.4

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144.

TABLE 24

Annual FTE Students in Higher Education Per 1,000 Population

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	24.9	24.6	21.5	20.2	22.2
California	46.4	45.5	40.0	37.2	38.7
Illinois	29.8	32.7	32.0	30.8	31.4
Indiana	25.5	28.0	28.7	27.6	30.2
Wisconsin	37.3	39.5	40.9	39.9	38.4

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144.

TABLE 25

Tax Capacity: Dollars Per Capita

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	$ 748	$ 866	$1,156	$1,453	$1,846
California	810	1,004	1,294	1,692	2,063
Illinois	806	969	1,096	1,356	1,748
Indiana	705	849	986	1,224	1,549
Wisconsin	698	862	962	1,246	1,582

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144.

TABLE 26

Tax Effort

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	73.2	78.2	72.1	75.9	82.5
California	116.7	94.7	98.8	93.5	94.4
Illinois	94.4	98.9	107.0	106.4	101.9
Indiana	82.3	84.2	88.2	95.6	93.0
Wisconsin	113.9	118.2	127.9	127.5	119.4

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144.

TABLE 27

Tax Revenues Per Student

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	$22,045	$27,506	$38,703	$54,488	$68,664
California	20,373	20,908	32,001	42,543	50,367
Illinois	25,543	29,316	36,649	46,803	56,778
Indiana	22,728	25,541	30,356	42,398	47,664
Wisconsin	21,320	25,789	30,038	39,801	49,188

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 99, 105, 108, 144.

TABLE 28

Higher Education Appropriations As A Percent of Tax Revenues

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	8.3	8.9	8.8	7.9	8.3
California	11.5	13.9	8.6	11.6	10.1
Illinois	7.3	7.7	7.4	7.4	7.2
Indiana	8.9	9.4	8.7	8.5	8.5
Wisconsin	10.5	10.4	10.2	9.0	9.0

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 100, 106, 109, 145.

TABLE 29

Higher Education Appropriations Per Student

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	$ 1,821	$ 2,458	$ 3,398	$ 4,298	$ 5,673
California	2,339	2,911	2,748	4,923	5,099
Illinois	1,869	2,265	2,695	3,462	4,099
Indiana	2,027	2,402	2,654	3,607	4,044
Wisconsin	2,236	2,688	3,056	3,570	4,411

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 100, 106, 109, 145.

TABLE 30

Tuition As A Percent of Appropriations Plus Tuition

	1977-78	1980-81	1983-84	1986-87	1989-90
Florida	24.7	20.4	19.3	18.5	17.4
California	6.5	6.9	12.5	9.4	8.5
Illinois	16.7	16.9	21.2	19.2	20.2
Indiana	27.6	28.8	35.9	33.2	32.1
Wisconsin	25.9	27.5	26.5	30.2	30.4

*Source: State Profiles: Financing Public Higher Education 1978-1990, pp. 100, 106, 109, 145.

APPENDIX B

Methodological Note

The researcher faces a number of difficulties in trying to measure bachelor degree attainment. The first is a scarcity of individual level data. A second is lack of agreement about the span of years over which attainment is to be measured, whether over four years, five years, seven years, or ten or more years. A third is lack of agreement about the target group against which it is to be measured. Is it to be measured as a proportion of students entering the four year campuses as freshmen and transfers? Or a proportion of baccalaureate intended enrollment at the two year and four year campuses? Or as a proportion of total higher education enrollment?

All three were issues in this research. We were not able to obtain individual level data, or cohort data followed over a sustained and comparable span of years. And a reasoned argument could be made for using different target groups to measure proportion of bachelor degree attainment. We were, therefore, forced to use aggregate enrollment and degree attainment data and consider carefully what methods of analysis we should use.

It has been our conclusion from working with data and methodological problems of this kind over a span of years, with a variety of research questions, that a method of analysis designed to test the particular theoretical and empirical questions raised in the research rather than a constant methodology or measure is preferable under most circumstances, particularly when the

underlying data base is not optimally strong.

Therefore we designed a methodology that would enable us to test our theoretical and research questions over five very different educational contexts. The empirical question we sought to answer was what proportion of the high school graduates in each of our five educational contexts were going on to post-secondary education and what proportion of those students were obtaining a bachelor's degree. And the theoretical question, to what extent, and in what ways, were structural differences associated with the differences in access and bachelor degree attainment we were observing?

Because we were doing a comparative study where structural type was the key dependent variable, our methodology and measures had to capture five different contexts and allow us to make comparisons. To examine the question what proportion of the high school graduates were going on to post-secondary education in this framework, we defined post-secondary education as public or private baccalaureate, community college, or disaggregrated community college enrollment, i.e., separate two-year transfer campuses and public vocational-technical campuses, and used the aggregate enrollment from all of these settings as our post-secondary enrollment.

Because our focus was the proportion of total post-secondary attenders that were obtaining a bachelor's degree in the five different educational contexts, we divided the number of bachelor degrees granted, by the number of total enrollments in post-

secondary education. This gave us a common measure of bachelor degree attainment across the five contexts and enabled us to observe whether, and to what extent, structure was a mediating variable.

The fact that we were forced to use aggregate enrollment and bachelor degree data imposed important limitations, but it also revealed some interesting facts. As we divided the aggregate number of bachelor degrees granted, by the number of total enrollments, using different time frames for completion rates, we found that, on average, the proportion of bachelor degrees granted each year was remarkably stable over time within each region.

Therefore, the number of years over which degree attainment was measured did not make the appreciable difference we expected, and became a non issue. In the end we simply divided the number of bachelor degrees granted at the conclusion of an academic year by the total enrollment in the fall of the year and found that to be as useful a measure as using enrollments four, six, eight, or ten years previously.

One of the most contentious issues in the research literature is how to measure transfer rates. We made every effort to clear our data sets of non-credit enrollment, and did so to the maximum extent possible in all five of our states. We also tried to separate out regular degree credit enrollment from adult credit enrollment that was not degree oriented, which proved to be a much more difficult task. We were able to follow high school graduate degree intended credit enrollment in California, first time in

college credit enrollment in Illinois and Wisconsin, but had to work with aggregate credit enrollment in Florida.

We then developed a measure of transfer rates which related to our larger research question, the proportion of total post-secondary enrollment obtaining a bachelor's degree, and that was the number of students transferring as a proportion of the credit enrollment noted above which included vocational credit enrollment as well as baccalaureate credit enrollment. The inclusion of both was important in two contexts. It captured the increasing number of vocational students transferring, and enabled us to measure transfer in the same vein as we were measuring bachelor degree attainment, as a proportion of the total credit enrollment.

We recognize both the strengths and the weaknesses of the methodology and the measures used, and encourage debate on their merits and our analyses of the data. Most of all we would like to encourage the collection and dissemination of individual level data, for it is only when that kind of data is available that more refined methodologies and measures can be used.

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Appendix Table A

Public Tuition and Fee Increases, Fall 1987-1991

	universities	commun. colleges
California	81.9%	20.0%
Florida	36.5%	29.2%
Illinois	34.6%	15.7%
Indiana	33.8%	33.2%
Wisconsin	25.8%	2.8%

Source: Higher Education Coordinating Board State of Washington, 1991-92 Tuition and Fee Rates--A National Comparison, 1991.